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NATIONAL ESTUARINE POLLUTION STUDY. PROCEEDINGS OF THE ALABAMA PUBLIC MEETING HELD AT ADMIRAL SEMMES HOTEL ON NOVEMBER 21, 1968

Federal Water Pollution Control Administration
Atlanta, Georgia

1974

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PROCEEDINGS

of the

ALABAMA PUBLIC MEETING

- - -

NATIONAL ESTUARINE POLLUTION STUDY

FEDERAL WATER POLLUTION CONTROL ADMINISTRATION

November 21, 1968

Admiral Semmes Hotel

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PUBLIC MEETING
NATIONAL ESTUARINE POLLUTION STUDY
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION

Admiral Semmes Hotel

Mobile, Alabama

November 21, 1968

- - -

The public meeting directed toward obtaining contributions from Alabama interests regarding the National Estuarine Pollution Study, being conducted by the Federal Water Pollution Control Administration, convened in the Ballroom of the Admiral Semmes Hotel, Mobile, Alabama, Thursday morning, November 21, 1968, and was called to order at 9:00 o'clock a.m. by Regional Director John R. Thoman, Southeast Region, Federal Water Pollution Control Administration.

MR. JOHN R. THOMAN: Ladies and gentlemen, will you all please rise for just a moment.

O, Lord, Who dost bless them who bless Thee and dost sanctify them who trust in Thee, save Thy people and bless Thine inheritance. Give peace to Thy world, to Thy churches, to our government, to our armed forces, and to all of Thy people. For every good and perfect gift is from above and comes down from Thee, O Father of Lights. And to Thee do we render glory, thanksgiving, and worship now, and always, and forever and ever. Amen.

Good morning. I am John R. Thoman, Southeast Regional Director of the Federal Water Pollution Control Administration, Atlanta, Georgia. I want to welcome you to this public meeting which we are holding to gather information and opinions about Alabama's estuaries for the National Estuarine Pollution Study.

This is the final such meeting to be held in the Southeast Region. The first meeting -- and it was the first meeting in the Country -- was held last January in Mississippi.

Most of you already know the specific reasons for this meeting. But for those of you who may not, let me summarize them briefly.

The National Estuarine Pollution Study was prescribed in the Clean Water Restoration Act of 1966. In that Act, Congress directed the Department of the Interior to make an extensive study of estuary pollution problems and to report to the Congress recommendations for future management programs.

This Study is to be completed and submitted by November, 1969. The purpose of these public meetings is to obtain the views and opinions of local public and private organizations and individuals who have an interest in the use of Alabama's estuaries and coastal waters.

The results of these meetings will also be used in another report on estuaries to be submitted to the Congress in January, 1970.

We will not be hearing today from sister Federal agencies or State agencies. These two groups will submit their statements later. We are interested today mainly in obtaining public views and opinions.

Many of you were invited to appear here and to make statements. However, anyone desiring to make a statement should let our people at the registration desk know, and we will put you on the program as quickly as possible.

And if there are any of you who have not yet registered, please do so before you leave today.

Dr. Ira L. Myers, the Alabama State Health Officer, is with us today. And he has been named by the Governor to represent the State's interest in this meeting.

Dr. Myers is a member of our panel today and will be hearing today's statements and perhaps asking questions to clarify some of those statements.

The other members of the panel are Mr. John White, who is the Regional State Planning and Program Grants Officer, and Mr. T. A. Wastler, who represents our Washington headquarters office and is working on the preparation of the National Estuarine Pollution Study report.

One thing we would like to make clear is that this meeting is yours, not ours. We are here to listen and to learn. What you have to say is important to us. And it will become a part of the record to Congress.

I earnestly request that all of our speakers today limit themselves to facts and to constructive advice and criticism. Doing this, all of us can move forward in the cause of clean water.

I would be somewhat less than candid if I did not publicly recognize that passions are at a peak in Alabama on pollution matters. However, this is not an adversary proceeding and, again, I urge everyone to keep his remarks in a constructive vein.

Mr. Tom Crites is our court reporter, and he will be making a verbatim record of our meeting today. Before making your statement, please identify yourself so that Mr. Crites may get your name for the record.

Also, if you have a prepared statement, it would be most helpful to him if you would give it to him.

Because of the number of people that have expressed a desire to make a statement today, I want to again urge you to limit your remarks to about 15 minutes.

The meeting record will be held open for 15 days to receive any additional statements that any of you or anyone else may wish to make.

Dr. Myers, do you wish to add anything at this particular time?

DR. IRA L. MYERS: I don't believe so.

MR. THOMAN: Fine. With that brief introduction, let me now introduce Mr. G. T. Nelson of the Alabama Power Company. Mr. Nelson.

MR. G. T. NELSON: Gentlemen, my name is G. T. Nelson. I am Vice President of the Alabama Power Company and Manager of its Industrial Department. It is in this capacity that I appear before you today.

For more than 40 years, Alabama Power Company has maintained an Industrial Development Department, whose principal duty is the creation of jobs for the citizens of Alabama.

In our work to improve the economic development of Alabama, we are constantly contacting industries throughout the Nation, promoting the advantages of an Alabama location.

For several years, a major portion of our efforts has been directed to the chemical industry. This program has been highly successful, resulting in the location of many water-using industries on Alabama waters.

I have worked closely with the staff of the Alabama Water Improvement Commission for more than 15 years in studying the water resources of Alabama as part of our program to interest water-using industries in Alabama locations.

Without exception, technical representatives of water-using industries, with whom we have worked in the past and are now working with, have on many occasions said that Alabama has one of the best staffed and most competent water quality and regulatory agencies in the Nation.

The Commission's past record shows its primary obligation has been to protect the quality of the waters of Alabama. Our working industrial development has demonstrated that water is one of Alabama's most important resources.

Alabama is fortunate in having many large industrial sites on coastal waters, and major industries are continuing to show an exceptional interest in utilizing these sites for manufacturing and industrial operations.

We realize there's not much known as to the effect on aquatic life of the utilization of estuarine waters for various purposes, so it is most important that research be done in this area.

It is necessary that this study be conducted by recognized professionals to determine the nature and extent of pollution, if any, and the appropriate uses to which such waters may be put.

With this knowledge, realistic standards, based on current technology, can be set for waste disposal that can be met by industrial users.

The estuarine waters are most important in the development of the states, particularly Alabama due to its vast estuarine waters, and they should be utilized wisely.

A vital part of the future growth of Alabama depends on protecting our waters for the expansion of the existing industry and the location of new industry.

In our judgment, the AWIC, through its technical competence and detailed knowledge of local conditions, is best qualified to oversee the orderly development of estuarine as well as all of the waters throughout the State. Thank you.

MR. THOMAN: Thank you very much, Mr. Nelson. Are there any questions? If not, I would like to call on Dr. Wilson Gaillard, President of the Mobile County Wildlife and Conservation Association. Dr. Gaillard.

DR. M. WILSON GAILLARD, SR.: My name is Wilson Gaillard, Sr. I am currently President of the Mobile County Wildlife and Conservation Association.

May I, as a life-long citizen of Mobile and one who has for the past 40 years sought ways to protect our great outdoor heritage, express a few personal views in regard to a proposed ship channel into the new Theodore Industrial Complex?

I ask this privilege because it appears this much needed project has run into difficulty due to a mistaken belief it may have adverse wildlife effects.

Mobile, Alabama's only seaport, is one of the principal harbors of this nation. Because of its favorable geographic location, it is destined to become even more important as a gateway to developing Latin American countries as well as for national defense. But Mobile cannot reach its national economic or defensive potential without the proposed deep-water channel into the new Theodore Industrial Complex.

Reports from the Alabama State Docks reveal the fact its bulk-handling facilities are presently operating at full capacity, thus making it impossible to handle this port's ever-growing bulk tonnage increases.

Foreseeing the urgent needs of additional dock space, an ideal tract of prime public industrial land, large enough to meet foreseeable future growth, has been secured.

It has already attracted new industry totaling millions of dollars. Many other huge companies are negotiating for plant sites, awaiting only the assurance of a 40-foot by 400-foot deep channel into the Theodore area from the present ship channel 5½ miles eastward.

A survey report is being made by the U. S. Corps of Engineers to determine the advisability and economic justification for Federal participation in providing the desired ship channel.

The Alabama State Docks Director has furnished shipping data to support the need for the new channel construction. Shipping companies serving this port recognize the need for this proposed channel and wholeheartedly recommend its construction. Railroads, banks, and businessmen see its need and urge its construction. From every financial consideration, the proposed Theodore ship channel is thoroughly justified.

The only objection advanced was the possible undesirable effects such as a deep channel might have on Mobile's important estuary, as upon wildlife and chiefly marine life. There is ample biological proof to dispell this objection. Estuaries are national assets and Mobile's important estuary is one of the Nation's best. We intend to keep it so.

The Mobile County Wildlife and Conservation Association, with its 1,800 members, has for 25 years steadfastly opposed all moves detrimental to our water resources and, as their president, I would most certainly not sanction this proposed Theodore channel if it endangered our great estuary asset.

Through years of observations and personal research in wildlife conservation, it is my considered opinion there are ways to make the proposed Theodore channel a tremendous wildlife asset as well as meeting an industrial need. But the key to making it an environmental asset rather than a factor of destruction rests on two steps: first, the method of spoil disposal, and secondly, a strict enforcement of antipollution laws upon local industry and shipping interests using these facilities.

In regard to spoil disposal, we have secured expert engineering advice which indicates the following recommendations are not only practical, they are economically beneficial. They are equally as sound biologically.

We believe any conservation group, yacht clubs, Audubon groups, nearby property owners, and all local fishermen will support the proposed channel if the following proposals are incorporated in the program.

1. There should be no encroachment into Mobile Bay. Its present natural shoreline must be zealously maintained.
2. We advocate that not one cubic yard of foreign material be dumped into Mobile Bay. We saw San Francisco Bay reduced in size by bulldozing rocks, old automobiles, city garbage, and the like so that new shorelines would jut out into their estuary. Their shortsighted development has seriously reduced the total cubic yards of water in San Francisco Bay, thereby reducing its value as a vital estuary.
3. Proper dredging and spoil disposal will not add foreign materials; it simply alters the depth of Mobile Bay by transferring cubic yards of natural bottom soil from one spot over onto another spot.
4. The end result of dredging and proper placement of spoil can be made tremendously beneficial to fish and marine life because it will create water depth best suited for spawning areas, conditions not presently found.
5. The proposed Theodore channel will extend across 5½ miles of Mobile Bay, which area is presently too deep for spawning or for small fry to survive in. Yet it is too shallow for favored migration route of many fish or schools of shrimp.
6. By scientifically depositing the 19,300,000 cubic yards of spoil which the new channel and new ship anchorage will involve, we can create several spoil islands, each surrounded by ideal shoal water, thereby offering new breeding acreage for all types of seafood.

7. Even though the several man-made islands will slightly diminish the water surface area of Mobile Bay, it will actually greatly increase the total cubic yards of Bay water due to the greater channel depth.

8. We emphasize the important fact that it is the water volume which furnishes a habitat for microscopic marine life, and it is this microscopic marine life that forms a chain of food essential to all earthly life, including human life!

9. The proposed Theodore channel will not only greatly increase the total cubic yards of water volume -- with its essential microscopic chain of food -- it will actually make this basic microscopic food more available to more different species by a unique control of varying water depths.

10. The key to this new concept of estuary improvement is based on the creation of stable spoil islands and a precise control of water depths around these islands. It is a concept which makes use of age-old laws of nature, but it applies these natural laws in more harmonious combinations and sequences to produce more ideal results. It is analogous to combining ordinary musical notes in such sequence, that the result is beautiful harmony rather than discordant confusion.

Mobile Bay's portion of the proposed Theodore ship channel would start from the west shore of Mobile Bay at the old Army ammunition depot channel and extend southeastward 5½ miles to connect with the present Mobile ship channel.

It would be 40 feet plus two feet deep, 400 feet wide at the base, with gradual sloping sides. Total spoil will be approximately 19,300,000 cubic yards.

As an all-dredging operation, spoil disposal presents the chief problem. There were several alternative proposals for handling the 19,300,000 cubic yards of sandy silt, including the following three:

A. By depositing the spoils so as to form a peninsula jutting out into the Bay from the shore; this peninsula to connect the property owned by private interests.

   This proposal would be totally unacceptable to all conservation groups and would be stopped by injunction before the first cubic yard was moved! Besides its many estuary-damaging features, it would amount to giving enormously valuable Alabama state land to private individuals. This happened at this very same spot when the original ammunition depot channel was dredged. (Gill versus State of Alabama, 1940.)

B. By pumping the entire 19,300,000 cubic yards of spoil back onto mainland.

Available estimates place this cost at approximately $6 million, based on an estimated cost of 31 cents per cubic yard. Such expense would adversely affect the benefit-cost ratio, thereby jeopardizing the much-needed project. We could not support this plan.

C. Depositing the spoil no closer than 1,000 feet from the channel and in such a manner that several spoil islands would be formed, at least three of which would be on the south side.

The estimated cost of this procedure is approximately $2,120,000, based on 11½ cents per cubic yard, or a saving of approximately $3,800,000 less the cost of 45,000 lineal feet of oyster shell mat at $2.50 per lineal foot.

Therefore, from a cost consideration plan C. is far more desirable, but it could not receive approval until a method of spoil disposal could be devised whereby the spoil could be made into an asset rather than a navigation hazard, a seafood plague, and a damaging factor to beach property.

By depositing the 19,300,000 cubic yards of spoil into permanent islands and also making valuable shoals, these objectional features would be eliminated. In fact, such islands would be very valuable as recreational spots, and by creating predetermined shoals bordering each island, they would tremendously improve seafood production.

Such islands, with their built-in features, can also be made into a water fowl paradise. In summers they would serve as nesting sanctuaries for hard-pressed shore birds.

Now, for some biological benefits of spoil islands.

1. The several created spoil islands would lie south of the proposed channel. Their combined periphery would add up to approximately 43,000 lineal feet of shoreline. Every lineal foot of island shoreline, with its shells and marsh grass growth, would offer excellent spawning areas for many species of fish and crustaceans.

2. They would be permanently stabilized against wave erosion by an apron of oyster shells and a border of cane and saw grass.

3. Each island would have approximately 500-foot shoals built around it, creating valuable new shoals graduating from zero depth to five feet. Such depths are ideal for schools of small fish to mature into harvesting size.

4. These island shoals would permit a new area for choice aquatic growth for all species of our dwindling waterfowl population to feed upon. It would doubtlessly prevent thousands of ducks from crossing the Gulf of Mexico in search of food, only to be slaughtered by hunters not bound by game laws in Central and South American countries.

There would be many other benefits accruing from these man-made spoil islands, and in my prepared paper, Mr. Thoman, I have outlined their functions separately. I would like to present this to you.

MR. THOMAN: Do you have a paper?

DR. GAILLARD: I have a paper.

MR. THOMAN: If you will give it to Mr. Crites, it will be incorporated into the record. Don't run away there. Maybe there are some questions.

DR. GAILLARD: If there are, I will try to answer them.

DR. MYERS: I think this is a most constructive comment of suggestions of possible solutions to the problems that exist. I don't know whether cost estimates have been included in your report or not.

DR. GAILLARD: Down to the penny.

DR. MYERS: Good. This will be very useful information.

DR. GAILLARD: Thank you.

MR. THOMAN: Thank you very much, Dr. Gaillard.

MR. HERBERT L. PEZENT: May I speak?

MR. THOMAN: Mr. Pezent, I was going to call on you in a few minutes.

MR. PEZENT: I would like to interject one comment at this point.

DR. GAILLARD: Was it a question you were going to direct to me?

MR. PEZENT: No, it was an injection into your comment.

DR. GAILLARD: I will leave that to the chairman.

MR. THOMAN: We will get to you in just a few minutes. Thank you, Dr. Gaillard.

Next, I would like to call on Dr. Howard M. Phillips of the University of South Alabama. Dr. Phillips.

DR. HOWARD M. PHILLIPS: Ladies and gentlemen, I am Howard M. Phillips, Dean of Academic Affairs at the University of South Alabama. I am substituting this morning for President Fredrick P. Whiddon, who could not be here.

The tremendous importance of estuarine resources is obvious. Deliberations and decisions relative to reclaiming and maintaining estuarine areas, specifically with relation to the effects of pollution on our estuaries, are sources of great concern to all of us.

There is some evidence that within a short distance of this meeting place one can find waters that are polluted when judged by the present water quality standards.

Contrary wise, there are other areas nearby that many persons would say are polluted, but according to the present water quality standards, the waters are not identified as polluted.

Though water quality standards have been set, many studies need to continue in order that criteria of a more acceptable nature can be developed. The concern of the knowledgeable people of this region resides in the quality of estuarine waters, not only as they affect recreational and industrial potential, but also as they affect the seafood industry.

Though considerable attention has been given to physio-chemical criteria for determining the degree of pollution, bio-assay as a means of determining pollution too often has been ignored.

Numerous studies have been made on the direct effect of pollution on shrimp, oysters, and fish. The effect of pollution on microscopic organisms which make up the fundamental food chain of the commercially valuable animals, however, has been relatively neglected.

Water quality standards should encompass biological criteria at all levels of the estuarine flora and fauna, as well as physical and chemical criteria.

Basic research toward developing these biological criteria should be strongly supported by all appropriate agencies. The estuary cannot be isolated from the streams which empty into it.

It is a relatively simple matter to detect sources of pollution from lands adjoining the estuary. It is much more difficult to determine the source of pollutants that enter the estuary from distant areas.

It is assumed that large river systems, for example the one which empties into Mobile Bay, carries pollutants from industrial, municipal, and agricultural sources.

It is imperative, therefore, that support of all types be directed to research into the present source and control of these pollutants. The establishment of protected estuarine areas is strongly advocated, and rigid measures to prevent encroachment on these areas should be taken.

In addition to the recognition of the recreational value of such areas, it should be recognized that the shrimp industry is fundamentally dependent upon them for continued prosperity.

The areas must be maintained in a relatively clean state in order that spawning grounds for shrimp will be maintained. Land fills and disposition of spoil are potentially lethal to the shrimp population of nearby waters.

Finally, adequate enforcement of regulations pertaining to the maintenance of clean water should be a standard practice. While local and state governments should bear the major responsibility for establishing and enforcing regulations, Federal control is imperative in some areas, especially where streams and estuaries cross state boundaries.

In summary, it is essential that more basic scientific studies and research be conducted and properly supported. Once a sound basis for the maintenance of the waters has been established, sound and fair regulations must be enforced as a part of the total program. Thank you.

MR. THOMAN: Thank you, Dr. Phillips. I have a question. Who should establish these protected estuarine zones? Is this properly a state function, Federal function, or should it be left up to the local people? What is your opinion as to the involvement of the various levels of government?

DR. PHILLIPS: Well, as I pointed out in my statement, I think in certain cases you're going to have a combination of local, state, and Federal government. But I think that this should be approached locally first.

MR. THOMAN: Fine. Thank you very much. Next I would like to call on Mr. R. H. Allen, who is representing the Associated Industries of Alabama. Mr. Allen.

MR. R. H. ALLEN: Thank you, Mr. Thoman. Ladies and gentlemen, my name is R. H. Allen. I am Senior Vice President of the Associated Industries of Alabama, and it is in this capacity that I appear before you today.

This group I am associated with represents the great bulk of the industrial establishments in the State of Alabama, most of whom are water users situated on the watersheds of the rivers and streams which flow into the estuaries of coastal Alabama.

As a group, the companies and the payrolls of the companies that we represent constitute one of the most important factors in the economic life of the various groups that go to make up the estuarine community and the people of Alabama in general.

We are also users of the many natural resources that are so plentiful in Alabama -- forest products, minerals, farm products, water transportation, and water.

It is not very important that this area has a fast growth cycle of pine and hardwood trees, if those who grow them do not have a convenient and profitable market for their utilization as pulpwood, lumber, flooring, furniture, mine pit props, and the like.

At the same time -- and this is important -- it should be recognized that the same individuals who furnish the management and labor for these industries are themselves among the most avid hunters, fishermen, and conservationists that can be found in the State.

Therefore, both as good corporate citizens and as interested and responsible individuals, we are as much concerned as is anyone else with providing an industrial and social climate and atmosphere in which the users of our abundant resources can enjoy themselves to the utmost and remain prosperous at the same time.

This can be achieved if we work together with good will and in good faith, and if we remain mindful of reasonable economics, feasible technology, and the greatest good to the greatest number of the citizens that constitute our community.

Toward that end, we have carefully examined the outline of this study, and we feel that the objectives are good. Industry has a direct interest in coastal waters and in the utilization of them.

Collective industry, which we fundamentally represent in this state, is really a public interest because essentially industry is no more and no less than a collection of workers who provide a service for the entire community.

We note with interest and with some concern that a number of assumptions have been made for the purposes of this study.

We hope the study will be addressed toward taking a careful and thorough look into the problem of the estuaries, and that it will not be simply a system for justifying the assumptions that were made.

An early phase of this study should effect a concise and reasonable definition and extent of an "estuary." Effective management and multiple use of the water resource have become increasingly important and will become even more important in the future as populations and industrial works increase.

Research in the water resource field to date, while commendable, is in many ways still in its infancy. Yet it is vital to establishing effective management, and we are presently quite short of information and hard facts.

It is in this area of extended research and determination of facts that we feel the Federal authorities can most beneficially direct their attention and energies.

Management stems from "what can be done," and, accordingly, research in this field cannot be continually negative if we are to establish proper direction and approach.

There should be, there even must be, vigorous effort expended to determine what can be done, since progress stems from what we can do practically with present technology and with the continuous advancement in technology.

Conservation should be dynamic, not static, and the mere holding of existing resources is not genuine conservation, nor is it reasonable, sensible, or practical.

Industry has concerned itself in dynamic conservation for a long time. Large amounts of time, effort, and money have been, are being, and will be invested in the area of air and water resources, and the record of the members of this association compare favorably with that of any other group, however constituted.

In connection with this, it should be observed that this was done and is being done despite the fact that improved technology probably will cause much of the capital installation to become obsolete, and this likely will happen within a relatively short time.

It should also be observed that while water is a renewable resource, in the sense that none can be destroyed, we cannot increase the available quantity because we cannot create water, so the use of water must be multiple just to keep up with present needs, to say nothing of the increasing needs of our increasing population.

Ways must be found to meet these needs if our standards of living are to be maintained and, hopefully, improved. This growth will necessitate many changes, including more manufacturing plants nationwide.

It is more imperative than ever to develop "what can be done." One of the vital areas of information needed, in addition to what can be done, is how far can we go without limiting the renewability of our aquatic resource and our water resource.

Proper management requires "can do" information. We hope and we urge that the study and the research work in this project will be structured to recognize the dynamic future of the situation and the probable desires and needs of future generations in addition to our own.

We also hope that the project will produce plans for development, particularly in research, of management information and technical information in the positive area of "what can be done."

Specifically with respect to our estuarine waters in Alabama, it should be noted that they do, in fact, provide multipurpose use for all the people.

These waters are used for recreation, navigation, transportation, commercial and private fishing and shellfishing, industrial use, and, in some areas, municipal water supply and waste disposal.

Each of these requirements of man's total environment should be available in these waters, preferably on a zoned basis, but not all at the same location at the same time.

Specific areas have been assigned specific usages by the Alabama Water Improvement Commission to fully utilize these waters for the greatest advantage of the entire community.

An overwhelming majority of the industries of Alabama have met with the Alabama Water Improvement Commission with regard to possible pollution of our waters and of how best to abate any that existed.

From these meetings have come projected forecasts for construction and operation of facilities to improve the conditions of these waters as expanded and new industry comes into the picture and to go along with the facilities which already have been built to meet the requirements of existing industry.

In support of our preceding comments on the benefits of this study, we feel that research on the professional and technically proficient level should be conducted on our estuarine waters to determine what pollution exists. Until we really know what, if anything, is present -- we say "if anything" because we have reports that current shrimp and crab catches have been excellent -- and until we factually know what would be required to maintain or improve the present levels, our civic, municipal, industrial, and other concerned groups have no acceptable adequate basis on which to move.

Without this knowledge, expenditures could be made which were without justification; desirable approaches could be overlooked; and wasteful, detrimental limitations of use could be set up.

Since the headwaters feeding the estuaries of Alabama are almost entirely intrastate waters of Alabama, we feel that the control of all these waters should be with the Alabama Water Improvement Commission.

The Alabama Water Improvement Commission has already classified most all the waters of Alabama, including the estuaries, into categories that benefit the needs of Alabama.

They have an excellent organization manned by outstanding personnel. Through their endeavors the waters of Alabama will not be degraded but will be enhanced even with the increased use of our waters by expansion of both municipal and industrial needs.

We also feel that the aforementioned studies and research should fall under the authority of the Alabama Water Improvement Commission so that Federal, state, and local monies could be pooled and the work administered by the one authority so there will be little, if any, duplication of efforts.

Our Water Control Act is fair and workable, our Water Improvement Commission is doing an excellent job, our schedules are being and will be met.

We urge, again, that control of these vital matters be left in State control, with the responsibility and the authority being centered in our Alabama Water Improvement Commission.

Gentlemen, we appreciate the opportunity of appearing here today to present the views and recommendations of the Associated Industries of Alabama. Thank you.

MR. THOMAN: Thank you very much, Mr. Allen. One question I would like to ask that sort of hits home here. Has Associated Industries of Alabama in the past supported the Water Improvement Commission's request for appropriations? And would you be willing to support their request for appropriations by appearing before the State legislature to urge that these be increased?

MR. ALLEN: I can only express my personal view. I can't speak for the Association, but I think we would.

MR. THOMAN: I mean, since you're proposing that the State engage in research and since they presently don't have all the funds that are required, I think it would be well for your organization to possibly assist them in this regard.

MR. ALLEN: I think our organization would support an increase, yes. In fact, I think we did this a couple of years ago. Let me point out here, we did say the monies in this way could be pooled so that a better job could be done and there would be less liklihood of duplication of effort, that is Federal monies and State monies.

MR. THOMAN: Yes, sir. Dr. Myers, do you have anything?

DR. MYERS: No.

MR. WASTLER: I do.

MR. THOMAN: Mr. Wastler.

MR. WASTLER: I have one question. You indicated where you think the responsibility for management should be. I wonder if you feel that industry-wide groups, such as the one you represent, should have an active role in this management? And, if so, what should it be?

MR. ALLEN: An active role in the management of the pollution in the estuary? I'm not sure I understand your question.

MR. WASTLER: In controlling -- let's say zoning -- different areas and controlling what degrees of treatment are provided, that type of thing.

MR. ALLEN: I think we would work in cooperation with the Alabama Water Improvement Commission as we have endeavored to do in the past; our point being that we feel that this agency would be the better one to have the overall control of studies, research, and management of the pollution in the estuary.

MR. WASTLER: You feel your role would be primarily advisory then?

MR. ALLEN: One of cooperation, yes; in any way industry could cooperate.

MR. WASTLER: Thank you.

MR. THOMAN: Mr. White.

MR. WHITE: I have nothing.

MR. THOMAN: If not, thank you very much, Mr. Allen. I would next like to call on the Honorable William Grayson, a member of the Alabama House of Representatives from Mobile County. Mr. Grayson.

HONORABLE WILLIAM GRAYSON: Mr. Chairman, ladies and gentlemen, I'm on the Conservation Committee of the House of Representatives, representing Mobile County.

Most of the members of your Conservation Committee in the State house are from Birmingham and Jefferson County and up that way, and we realize industry's and local people's feelings. We must have prosperity, and we must have clean water. And I am glad to hear we have the Associated Industries going on record as wanting not only to hold the status quo, so to speak, in just keeping the water like it is, but wanting to get it better -- clean it up. And I think that is admirable.

However, I can't agree with him when it comes to the suggestion that we do away with all duplication and putting everything concerning our waters under the Alabama Water Improvement Commission. I believe the checks and balances system has proven out -- proved to be very good in our country.

The present commission is doing a very good job. I have no complaint. But I do feel that the Federal government should not just turn everything over to them.

We need their laboratories and scientists and know-how and their knowledge. This should be offered to the Commission, but the Federal government should not just give up all authority.

We need jobs, and industry is cooperating. They are spending thousands and thousands of dollars and, of course, the people appreciate it. And as far as the legislature goes, I'm sure that we will find funds to maintain the good work that our Water Improvement Commission is doing.

MR. THOMAN: Thank you very much, Mr. Grayson. Next I would like to call on C. M. A. Rogers, representing the American Littoral Society and the Mobile Big Game Fishing Club. Mr. Rogers.

MR. C. M. A. ROGERS, III: Thank you, gentlemen. My name is C. M. A. Rogers. I do appear here in a double capacity, both as a representative of the American Littoral Society, an organization devoted to the preservation of our estuarine resources, and as a representative of the Mobile Big Game Fishing Club.

While the latter organization is primarily concerned with pelagic species, we nevertheless believe that the food chain which feeds the blue marlin and the white marlin and the sailfish, which we are interested in, begins in part in the estuaries. And we feel strongly enough about this to be genuinely concerned about estuarine pollution.

I thank you for the invitation and the opportunity to appear before you. We in both of these groups are extremely concerned and believe that action now is a necessity.

Experience in the area of estuarine pollution seems to bear out the fact that an estuary once destroyed or heavily polluted can't again be reestablished -- or can't be within a reasonable length of time. Once it's taken apart, all the king's horses and all the king's men are helpless to put it together again.

Now, I don't come with reams of paper work to offer you all. Most organizations of the type which I represent don't have the resources to furnish it to you, or perhaps in some instances the inclination. I hope the latter is being corrected. I do have with me a copy of "Fish and Man," a publication of the American Littoral Society. I understand that this has been made available to you in previous hearings, and I will not, for that reason, offer it unless you so request.

I don't have samples of dirty water and smelly mud, and I'm not going to wave my arms and get hysterical about this thing. But because of that fact, I do not want you to think that we are not concerned, and vitally concerned, about the problem that we do have.

I accept this fact that the estuaries of Alabama are in many ways polluted. And if you disagree with me on this, I invite you to take a walk with me along the shoreline, to put on a face mask and flippers and swim with me over the bottoms to look and see what pollution exists.

I believe that our estuaries have, in fact, by a number of causes, systematically, in varying degrees been demolished, altered, and poisoned over the past years. What can we do to correct this situation? I think that we need to strengthen and improve our antipollution laws and our antipollution standards.

While we have supposedly eliminated the grandfather clause of the Water Improvement Commission Act in Alabama, I have doubts as to whether we have, in fact, eliminated the grandfather polluter.

For industry, I believe that we have to tighten our standards. And I would respectfully suggest that studies and criteria on which future determinations should be based should be made by unbiased groups and not by one controlled by industry nor, conversely, by wildlife or supporting interests.

I believe that this can be done without committing economic murder. I believe that perhaps our worst offenders are our municipalities, and I would urge Dr. Myers, in particular, and the citizens of this state to lend their efforts individually and that of their offices where possible to the correction of that fact.

Again, I think that our standards regarding pollution should be materially increased, tightened, and bettered on a fair basis to both the industrial and municipal side as well as the wildlife and conservation interests side. The great river system of Alabama and our many estuaries deserve a better fate than being relegated to open sewers.

Thirdly, I think that we need to educate the public both through Federal and state and local programs. For, if we are honest, we must all admit that we are all polluters. Be it a beer can; the use of hard detergents and insecticides, which are not perhaps soluble and destroyed by bacteria in later months; careless dredging; and the like. I believe, and the organizations that I represent believe, that there is room for coexistence. Neither organization I represent would deny this and would, in fact, urge it upon you. For coexistence there must be a great deal of give-and-take. I would state at this point, however, that for the sportsmen, the conservationists, and in many instances the commercial fishermen give-and-take has largely been a one-way street in the past.

I think that perhaps this problem which we face can best be solved by some type of a zoning concept and assignment of waters for particular uses. That which is used by industry should be industry's, and the sportsmen should not seek it.

Conversely, those areas which are set apart for the sportsmen should be protected and not permitted to be entered by industry under any circumstance.

I think, as I say, that it's time for the municipalities and industries to give some more than they have in the past. Admittedly, I am biased in my approach -- my bias is now based on the improvement motive.

I feel, in conclusion, that it would be nothing short of criminal for me, for you, for all of us here, for the industries represented here to stand by or to carelessly destroy the estuarine resources that we now have. Once destroyed, we can't regain them. Thank you, gentlemen.

MR. THOMAN: Thank you very much, Mr. Rogers. I have a question. Throughout all of our hearings, with the exception of the one in Mississippi last January, we have been getting this recurrent theme of zoning. What is your opinion, sir, as to how this zoning should be done?

MR. ROGERS: By nature, I am a states-righter. In this instance, I want action, and I want it fast, and I want that governmental organization to undertake it which will undertake it. I don't feel that in Alabama -- and by saying this I'm not criticising your present Water Improvement Commission, but I'm criticising the laws we have in Alabama -- we have done our job. I, for that reason, would have no objection to these standards being made or done by the Federal government if the State fails to meet its responsibility in this area.

I would prefer, as the previous speaker said, to see cooperative efforts being made. But I would prefer to see it done in a hurry. And whatever it takes to do that, if it takes Federal intervention and control, I'm willing to accept it because I think the importance of the subject demands it. (Applause)

MR. THOMAN: Dr. Myers.

DR. MYERS: We have attempted, as a Water Improvement Commission, to classify waters. I'm trying to identify in my own mind exactly how much further you think the classification of these stretches of streams and areas of water sould be taken in a zoning concept.

MR. ROGERS: Dr. Myers, in answer to that, I must profess some ignorance as a biologist to start with. I would question -- and by this answer I mean no criticism of anyone or any commission -- but I would question the validity of the standards on which classification is now being made. And, as I say, I do that not as a biologist or as one familiar with the standards, but the results we have seen in some instances would, to me, indicate that these standards are perhaps not the most accurate that can be gotten, although they may be the most accurate available now.

DR. MYERS: Are you aware of the fact that the standards and criteria have not been firmly adopted yet?

MR. ROGERS: No, sir, I'm not.

DR. MYERS: Some have been proposed that have not been adopted. So, therefore, they could not be implemented.

There is one other question which I want to raise. You have mentioned that you think that our laws ought to be strengthened, and I think from time to time we all feel this need. Can you give us specific examples of how you would like to have the present laws strengthened?

MR. ROGERS: Well, I think first of all -- and perhaps this isn't a direct response to your question -- but I think the Water Improvement Commission should be given a great deal of money.

Secondly, I would like to see a better balance on the Water Improvement Commission between industry, conservation, and wildlife resources. While we hear a great deal about the tremendous amount of money that industry pours into our economy -- and certainly this is true -- the sportsman puts a tremendous amount of money into our business. Fishing in itself is a billion-dollar business. And I do feel that representation can be more evenly distributed than at the present time.

MR. THOMAN: Mr. Wastler?

MR. WASTLER: No.

MR. THOMAN: Mr. White?

MR. WHITE: I have nothing.

MR. THOMAN: Thank you, Mr. Rogers. Mr. Pezent lists himself as an interested citizen of Clarke County. Mr. Pezent.

MR. PEZENT: My name is Herbert L. Pezent. I'm from Jackson, Alabama. I have been smelling and tasting and seeing this problem that we face.

Now, I represent no political interest. I represent no financial interest. I know one man, Herbert L. Pezent, is an interested citizen in clean water.

We all use water every day. We have got to have it. There's no way around it. We must all live together. And to overcome our problems I can see that we must unite and pull together.

Now, that means a lot of money and effort can be wasted by bickering among ourselves. You know in the Federal government today we lose billions of dollars on studies and the work lies behind unattended. I want to say, for the record, that I plan to do everything possible to enlighten the people to work together and pull together in one direction to clean up our water.

Now, to get something going. How do we do it? What have I done? What can I do? I asked myself those questions years ago. I know one thing that I can do; I can get information. I can study; I can enlighten myself, know what the problems are and work on them with an open mind, and work with people unceasingly to keep this program going in constructive channels.

Now, for the record, it's my intention to work with citizens, enlighten citizens, to work toward a better program for more clean water.

MR. THOMAN: Thank you very much, Mr. Pezent.

I would next like to call on Mr. Hugh A. McClellan, Marine Sciences Institute, University of Alabama. Mr. McClellan.

MR. HUGH A. McCLELLAN: I wish to thank you for the opportunity of coming here today and giving a few thoughts of a biologist along the lines of water quality in Mobile Bay.

The University of Alabama has a vital interest in water quality of Mobile Bay and Mississippi Sound. Our laboratory is located near Bayou La Batre, the center of Alabama's coastal fishing industry. The site was carefully chosen so that sea water could be obtained from one of the few unpolluted bays in Alabama. I might add that it was not without effort that we found clean sea water in Alabama.

The pollution problems in Mobile Bay are multiple problems and cannot be solved merely by study of small, specific projects. We need a more encompassing study of the area to discover the existing balance between physical, chemical, and biological factors in the environment.

A few months ago, we submitted such a proposal to the FWPCA which would have furnished us with the necessary baseline information. However, this was not funded, and we were told to submit proposals for small, specific projects. In our view, this is a waste of funds until we know the total situation. We believe each estuary to be unique.

Only in South Africa and Chile do records exist of "jubilees" such as occur in upper Mobile Bay in which large numbers of fish are driven ashore by a mass of oxygen-depleted water. This may indicate that oxygen conditions in upper Mobile Bay are normally rather close to the minimal tolerance level for many important marine organisms.

Also, during summer months we have recorded bottom temperatures in excess of 85°F. Consequently, we feel any additional stress caused by increased thermal pollution could drastically upset the existing delicate balance of the system.

The same statement applies to the introduction of any oxygen-demanding substances. In the upper portion of Mobile Bay 457 acres of productive oyster reefs have been lost to the industry since the turn of the century. Some portion of this was destroyed by channel-dredging operations, but our aforementioned lack of knowledge of the total environment does not afford us any information as to the disappearance of the remainder.

Where do we go from here? Funds available for research on short-term discrete problems are insufficient. Throughout the Nation, it is largely Federal funding that determines direction and rate of university research. Will the funding be forthcoming? I hope so, because I think today we are ready for an environmental broadside. I've seen enough target practice. Thank you. (Applause)

MR. THOMAN: Thank you very much, Mr. McClellan. As I have asked so many other people at other meetings, would you and some of your colleagues give some thought and submit for the record an estimate in dollars as to what you think the level of funding for research on estuaries should be on a yearly basis?

MR. McCLELLAN: Sure would.

MR. THOMAN: If you would consult with some of your colleagues and come up with some type of figure, we would certainly appreciate it.

MR. McCLELLAN: Yes, sir, I surely will.

MR. THOMAN: Dr. Myers.

DR. MYERS: You mentioned something that I have been concerned about. I have never seen one of these jubilees. You have indicated that this is due to oxygen-deficient water.

MR. McCLELLAN: That's correct.

DR. MYERS: Do you know of studies that have been made, or on what do you base your statement?

MR. McCLELLAN: This is based on a study that was performed by Harold Loach. This was published in the "Journal of Ecology" in 1959. I would be glad to send you this reference, if you would like to see it.

DR. MYERS: I certainly would appreciate it.

MR. THOMAN: Do you have something published on this?

MR. McCLELLAN: It is not my paper, but it was a paper done by a former biologist in Alabama.

MR. THOMAN: Mr. Wastler.

MR. WASTLER: One of the major things to be included in our final report is recommendations to the Congress for research and study needs in estuaries. We would be most interested if, in addition to the funding level, you would give some thought to the technical makeup of an overall research program. In other words --

MR. THOMAN: Al, you didn't know this. Mr. McClellan, think about that, and you will be asked sometime next spring to participate in a seminar or symposium -- and I use that word loosely -- at Athens, Georgia, concerning the technical makeup of research needs.

MR. McCLELLAN: Yes, sir.

MR. THOMAN: Incidentally, for the other members of the audience, if you go look in Webster's unabridged dictionary, you will find that the first definition of "symposium" is a drinking party.

I would next like to call on my friend of many years standing, Mr. Ralph Richards, who today is representing the Oyster Institute of North America. I might say that at a hearing Congressman Jones had in Florence several years ago -- well, the normal way to testify before a Congressional Committee is that the witness sits out here facing the Committee, with his back to the audience. Mr. Richards objected to that, and asked Congressman Jones if he could stand over in the corner where he wouldn't have his back to some of his "friends" out in the audience.

I also want to make one other remark. Dr. Meyers, we will get to you next. I understand you have to get back to your practice.

Mr. Richards.

MR. RALPH A. RICHARDS: My name is Ralph Richards, and I am Executive Vice President of Alabama Fisheries and a director in the Oyster Institute of North America, and I will testify in behalf of the Oyster Institute of North America. Alabama Fisheries Association has been on many records of the problems of the estuaries, and the information is available to the Committee and to Congress to read if they so desire.

I chose to speak for the Oyster Institute because it is probably the oldest fisheries organization in North America. It dates back into the 1880's.

I want to put Dr. Myers at ease and the adversaries of the other side at ease. I'm not going to talk about local people or local conditions, so you can relax. I never have called names of companies or people.

We are all trying to find a solution to the real problem, and we are trying to get to the bottom of what the problem is and how to solve it. And I would like to start at the top where the authority is in the Country, the people that really control our destiny and our water, and then I will get back on local conditions. But, I would like to fuss a little bit with the trinity: big labor, big business, and big government.

I'm quite disappointed, as an American citizen, in the attitudes taken by the "big three" towards problems that we have in water pollution. We only have three elements to be concerned with, and that's our air, our water, and our land.

We know that our space people know exactly what the contents of our air is all the way to the moon. We know that our land people know the exact conditions of our land all the way through the earth -- nearly through it.

I have relatives in the oil industry, and I know for a fact that they know every inch of land in the United States, and most in the world, as to what's in it and under it and what constitutes the composition of our earth.

And I can't imagine an organization such as the Department of Agriculture not knowing the soil conditions that the farmers work under. They know exactly what's going on.

And what I'm saying to them -- and I will start with labor first -- is that I am a little disappointed in our big labor people in Washington that they don't care about the fishing industry of the United States.

I have traveled quite extensively around the United States and talked to people in the industry, and I will say this. I had a little hope when I came home, for as bad a shape as we are in, we are in better shape on the Gulf coast than the people on the west coast and the east coast. We have a better future. A Norwegian told me one time, "You're the luckiest people in the world, because the Gulf of Mexico is literally the greenhouse of the Atlantic."

But our oyster industry is not so fortunate as our migratory fishing people. The oysters can't migrate. When you put an oyster there, he is there. The natural reefs are there and can't move; and, unfortunately, a lot of these natural reefs are in the pollution line.

Well, our labor people have really been interested. They have been more interested, I would say, in foreign labor than they have their own people at home.

To prove what I'm saying, in order to certify oyster bottoms permitting oysters to be imported into this country, our scientists have gone to different foreign countries and are there for a matter of two or three months, and then they issue a certification that the water is pure and wholesome, and that the oysters are fine to come into this country.

We have laboratories on our coast that have been here for years, and they make like they don't know what it is all about or what the conditions are. They know exactly what it is. The Public Health Service has been working with the oyster industry for some 40 or 50 years. All Congress has to do is read the records and find out what the problem is.

We don't need more money put out for research to find out what the problem is. All you have to do is read the reports. I can't conceive of a President of the United States not being in a position to find out in 15 minutes what the conditions are all over the Country in our waters.

This Pollution Committee, the authorities have kicked it around, to DHEW and the Public Health Service, and now they kicked it over into the Department of Interior.

And what this means is that these hearings -- and I have been to a lot of them, and I have never seen a vote gained or anybody's opinion changed at a hearing -- everyone airs their opinion. And I have come to the conclusion that a hearing is merely a test, a device to see how much people can stand. And I don't think the people can stand any more.

It's time that big government quit frauding the people, deliberately deceiving them and telling them that we don't know what the problem is. You have got to go out there and find our for yourself.

I have testimony here that was given several years ago by Ed Gruble, Seattle, Washington. He is now the President of the Oyster Institute of North America.

I didn't know Ed until last year when I met him when I became a member of the Oyster Institute. I read his testimony, and if I took his name and substituted it for mine, everyone in this room would swear that it was the testimony I gave here a year or two ago. The testimony is just about the same. It gives evidence. It has all been said. I have nothing else to say that hasn't been said or should have been said.

But I think we should get to the heart of the problem and demand from our Congress that they quit playing footsie with the public and they start taking the information that's already available and start doing something about it. And when big government gets so big that they play footsie and they fool with the stockholders of this country, which is the people, I think they're making a great mistake -- in big labor or big business or big government.

I will jump a little bit on big government. I have been against their hired guns for several years now; it's no different than it was in the cowboy days. They take a Ph.D. or somebody that has got all of the technical information and put them against a layman who is not backed with technical knowledge and try to make him look like a fool. This, I think, is something that people can change if they would just get up and start complaining where the complaints belong.

I don't say that the commissions are not doing a good job. And it hurts me, as a citizen of Mobile, to constantly be bickering and disagreeing with friends that I have to live with and make a living with and socialize with and so forth.

But I will say this, when I started off in this water pollution thing, I learned what it felt like to be possibly a colored man or a Communist, because people would come up to me and say, "Ralph, I'm all for you, and you're doing a good job, but I can't say anything because I work for so-and-so." Well, I heard this for three or four years, and each time I ran for office, the response got a little better. It got a little more out in the open. And I am happy to say that now in the best of social circles they're talking about water pollution, because people have begun to realize that his social position is not nearly as important as their economic position.

And I think that if we will stress this with our congressmen and say, "Let's do something about it. Quit fooling around. We know what the problem is. We know exactly what the problem is in every bay, river, and estuary in the Country, and we are tired of fooling around waiting on it. If you want to sacrifice the oyster industry, just keep proceeding like you're doing, and we will be importing our oysters."

And we are already importing 71% of the seafood consumed in this country, and I think that is a disgrace, because we have the best resources, probably, in the world, and we are not managing them. We're just fooling around with them.

And I would say, to give you an example, if an oyster man goes out here in Mobile Bay and plants an oyster bed and has some $15,000 invested and we have an accident up the river and the tides are wrong and it kills all of his beds, he has no recourse other than, "It is too bad; you got in the way of progress." He has got to prove what killed them and what happened to them. He can't do that. Yet, the oil companies can go out 500 miles in the Gulf and can drill for oil, and if anyone disturbs them the United States Navy will come out and protect them.

Why aren't we entitled to that type of protection? Why do we have to defend ourselves when the Public Health Service and everyone in HEW, now the Department of Interior, has this hot potato, and none of them have been willing to face up to the real problem and help the people in the industry.

Now, it's true the oyster industry, even though it is old, is small compared with other industries. But we know when the fishing industry goes, a lot of your other benefits go with it. And if the American public is willing to sit by and let it go, well, there's nothing I can do about it. But I am going to keep trying.

Some years ago when we built Big Creek Lake, our authorities told us that we had enough water for 75 years for Mobile. And here in a very few short years, we have spent $6 million to bring in more water because they say if we don't get more water, we're going to lose some of our industries.

I think industry is running industry off. I don't think the people are running industry off. Because if you don't have water, you can't have industry.

Already our pollution demands on our river system -- we admit, and I have heard Dr. Myers admit, that there are some 600 million gallons a day of pollutants entering into our rivers that eventually wind their way into the estuaries. This amount of pollution is equivalent to possibly some 24 million people using these rivers. Well, Alabama isn't that large, but if we continue to pollute at that rate, we're not going to get any larger.

Our population can't get any larger unless we take care of these problems. With water unfit for sports use and unfit for future reserves for more industry to come in, we are limiting ourselves when we don't take care of this problem.

And the public has got to pay for it eventually. I don't mind the taxes for water pollution purposes. I would much rather pass taxes onto my children so that they will have clean water 20, 30, 40, 50 years from now, than to still spend the same tax money fooling the public and playing footsie and pass onto them a rotten mess that they won't know how to contend with.

Our fathers didn't have this problem, and our children won't know how to cope with it. And if our Congress doesn't do something today, we're going to be in a pretty hopeless situation.

Mr. Chairman, that's about all I have to say.

MR. THOMAN: Thank you very much, Ralph. We appreciate it. Are there any questions?

DR. MYERS: Let me ask one question for clarification. You're talking from the standpoint of the oyster industry. What is the size or how much volume of oysters -- I'm talking about harvested oysters -- how many harvested oysters do we have now, compared to 20 years ago? Are we up or down?

MR. RICHARDS: I can't give you the tonnage amount, but in 1935 we were producing and consuming in this country approximately three times what we are today. And it is projected that in the next ten or 15 years, we will be harvesting probably a third less than we are today.

DR. MYERS: Do you have any idea how this relates to our particular problem here in Mobile; whether we are producing more or less oysters from Mobile Bay now than we were 20 years ago?

MR. RICHARDS: Our records show -- and they just started keeping records last year -- of course, the records show less production, but it's the first year they had a record to compare it with -- a fair record.

We know in the oyster industry the average has gone down now to where it is concentrated in one small area. And Mobile Bay was rated by the people -- by oyster biologists -- as having the best potential in North America for raising oysters.

They rated the oyster industry alone as a $100 million industry. And I don't think we would run over a million or million and a half here today, because we have not managed and planned and worked around the problem.

DR. MYERS: Thank you.

MR. THOMAN: Thank you, Ralph. Following the next speaker, we will take a short break.

I would like to call on Dr. Dixon Meyers, a physician in Mobile, who is representing himself.

DR. DIXON MEYERS: Thank you, Mr. Thoman. I appreciate your allowing me to speak promptly, and I apologize to the other members of the audience for any delay that I may cause them.

I wanted to speak about a particular estuary in Mobile County, and that is Dog River. And I'm sure most of the people who know me know that I have a very personal interest here in that my home is on the banks of this river.

But I think three things have happened that are rapidly ruining this particular stream, and I would like to mention briefly each one of them.

The first, I think, is the dredging of the Mobile ship channel. You may think this is a far-fetched correlation, but I don't think so, inasmuch as the spoil from the dredging has been deposited on the west side of the channel. If you will look at a map, you will find that this is a relatively narrow part of the Bay. And in the recent dredging, a couple of years ago, when the channel was increased from 30 feet deep, I believe, to 40, this resulted in a series of islands all the way down from the mouth of the river to the ammunition dump channel, which completely cut off this northwest corner of the Bay, making it a dead lake.

This is a portion of the Bay the Dog River drains into. I think the reduction of the tidal flow in and out of Dog River has contributed significantly to the silting of this river.

The second factor that I would like to call to your attention occurred about six or seven years ago with the construction of the Beltline Highway. And in connection with this, a large drainage canal was constructed through Wragg Swamp, which emptied into the upper reaches of Dog River.

Now, when we have a heavy rainstorm out at Spring Hill, within a matter of less than an hour we see red mud in Dog River, which we never saw before. And I feel a significant amount of the silting of Dog River is due to this very rapid drainage from a very large area in the allowing of this water to run very quickly into Dog River.

Some people that I have talked to have tended to minimize the amount of silt in Dog River. I think it can't be overemphasized that this river is rapidly becoming a mud flat.

When we have a strong north wind now, you can see the bottom of the river exposed for literally hundreds of yards out from the banks, which did not occur prior to ten or 15 years ago.

I mentioned the fact that we now have red clay in Dog River, which we never had before. And to add a personal reference, when I first moved down to Dog River, some 17 or 18 years ago, there were six feet of water at the end of the pier at my house at normal tide. In this relatively short span of time it's now about four feet. And the same can be said for every pier along the river.

The third factor that I wanted to mention is that in the upper part of Dog River there is a sewage disposal plant. Now, this plant, as I understand it, as best I can determine, produces biologically pure effluent; that is, there is no active bacteria in it. But, it apparently produces a tremendous oxygen demand on Dog River.

If you will refer to the "Mobile Press" and "Register" for the past year, we had almost weekly fish kills in Dog River apparently due to reduced oxygen. And I suggest to you, that if something is not done, and done very promptly, that the entire Dog River area, which I think is a tremendous asset to this city -- this is one of the few cities that I know of that has this type of waterfront property within the city limits -- but unless something is done very promptly to relieve the silting situation and to relieve the oxygen demands of this sewer plant, I think, as a residential area, this will be lost to the city. Thank you very much.

MR. THOMAN: Thank you, Dr. Meyers. Would you wait just a minute? I would first like to make a comment. You have just described a series of alterations of an environment man made for some presumed social or economic "good" -- and I put the "good" in quotation marks -- that has so altered the ecology that eventually Dog River as you originally knew it will not exist.

DR. MEYERS: It already doesn't.

MR. THOMAN: These are three isolated man-made alterations of this environment. Each one of them probably was done without consideration of the other or what the effects might be on the ecology of the area.

Presumably the sewage treatment plant was built to take care of a problem, and the Corps of Engineers had to dredge the channel to get boats in so that industry could survive, and you and I wanted a highway to get to New Orleans faster and to get to the airport faster, et cetera.

You have done an excellent job of describing this. The question is what should be done about this. Should there be some super-planning bureau? Should there be some improvements organization? Or should there be a private organization that takes a look at the impact of all of these man-made changes that eventually destroy an estuary? You don't have anything in Mobile County compared to the problems that are existing in Florida with the dredge and fill permit.

People want waterfront property, and then they want a bulkhead, and pretty soon they dredge to fill in, and pretty soon they have no estuary.

What are your opinions as to what should be done?

DR. MEYERS: I would certainly agree or urge that there be some review board of some type that would try to evaluate the impact of improvements on other features of the environment.

I would think certainly that biologists, perhaps chemists, as well as engineers and economists should be on such a panel. I would like to emphasize that I certainly am not opposed to progress. I'm not opposed to deeper ship channels. I'm not opposed to sewer plants. And I'm not opposed to highways. But I think, for example, with the ship channel some better method of disposing of this silt could be found than to dump it on the beach on the west side of the Bay.

And with the sewage treatment plant, it seems to be not impossible to oxygenate its effluent in some manner so that it would not produce fish kills.

Perhaps in the case of the highway, they need a settling basin to allow the silt to settle. I would defer to engineers for those answers.

MR. THOMAN: We're not looking to you for answers to specific problems, but I was merely trying to elicit your views as to how this might be done. I have my own personal opinions.

But something is going to have to be done to control the impact of social and economic improvements on the environment. You described a classic case. I could describe several more.

And we are trying within the Federal government to get the Corps of Engineers to focus more attention to disposal of dredge material. The Corps has been extremely cooperative on this. We had a case last week in Hillsborough Bay where the Corps will be looking at alternate sites for disposal of material.

DR. MEYERS: To try to answer your question, I personally would be in favor of some sort of review board that would be empowered to evaluate the effects of projects and have the power, if necessary, to demand some alternate solution.

MR. THOMAN: Thank you very much, Dr. Meyers. We appreciate your coming.

Let's take a break until 11:00 o'clock, and then we will reconvene.

(Whereupon the meeting recessed from 10:34 o'clock a.m. until 11:05 o'clock a.m.)

MR. THOMAN: Gentlemen, if you would all be seated, we will get started again.

I have a telegram here, and I would like to let the record show that a statement will be forwarded from the Alabama Chamber of Commerce for inclusion in the record. This telegram comes to us from James J. Britton, Executive Vice President of the Alabama State Chamber of Commerce.

Next I would like to call on Mrs. G. S. McKinstry, who is representing herself. I believe Mrs. McKinstry lives along Dog River, and since we were on that subject, she would like to speak at this time. Mrs. McKinstry.

MRS. G. S. McKINSTRY: I just have a word or two to say in relation to changes that have taken place on Dog River. When I moved down here 25 years ago, it was a beautiful stream.

The coots would come in this large basin where Moss Creek empties into the Dog River. They would be so thick that there would be great rafts of black on the river. And the mallards and other ducks would pitch in the marsh grasses at night.

Well, that all has changed since the canal was dredged. The canal comes right through this beautiful marsh. Evidently some of the marsh grasses have been destroyed, some of the food for the ducks has been destroyed, because we don't have many ducks anymore. Occasionally a coot will be floating around, or a duck might find his way in late in the afternoon.

But one of the great things that I miss is the purple-headed gallinule. They nested there for years. And if you have ever seen a purple-headed gallinule, you know what a beautiful bird he is.

The first year after the canal was dredge, he failed to come back, and he hasn't been back since. We have lost many because of lack of food, and I'm sure there are much fewer birds that nest in the marshes than before the canal was dredged.

And the great mudbank that has built up in front of my house with stumps and all manner of debris is a terrible-looking thing. It's good for coots, I mean for snipe and killdeer, but that's about all you can find out there. Thank you.

MR. THOMAN: Thank you very much Mrs. McKinstry.

Next I would like to call on three representatives of the Mobile Area Chamber of Commerce: Mr. Forrest Little, Mr. William Holland, and Dr. James Walters. Mr. Little, are you the President of the Mobile Chamber of Commerce?

MR. FORREST LITTLE: Yes.

MR. THOMAN: Do you want to handle it in this order?

MR. LITTLE: Right. Mr. Chairman, so we get it on the record, as you requested, my name is Forrest Little, and I appear here as President of Mobile Area Chamber of Commerce. I would like to point out that I am not a technical man nor an expert in the field of estuaries or pollution.

Some 30 or 40 interested committee members drafted this statement which was approved unanimously by our Board of Directors. If you have questions, I shall be glad to pose them to our committees and will file written answers within the time allotted.

> "The Mobile Area Chamber of Commerce is for pollution control, as is every thinking American. We present testimony today for the purpose of assisting those who make decisions to distinguish the difference between what is idealistic and what is realistic in the aims and goals that are to be set. We strongly feel that there is a difference between idealistic control and realistic control.
>
> "The Mobile Area Chamber of Commerce is dedicated to continued economic growth and its benefits to the total community. Continued economic growth means more jobs, more money, more people, and a higher standard of living for all people in this area. Stated in simplest form, the primary aim of the Mobile Area Chamber of Commerce is to assist in creating prosperity for this entire region.
>
> "It has long been recognized that the great need of this area is new jobs, for from them flows cash in form of wages, supplies, taxes, et cetera, which are necessary and essential to effectively run our local government, schools, hospitals, libraries, cultural projects, and all other worthwhile civic endeavors.
>
> "Now this effort for new jobs has been influenced by these principal factors:
>
> 1. Mobile is first and foremost a port, and it always will be.
>
> 2. The millions of acres of trees surrounding the Mobile area.
>
> 3. The tremendous quantities of fresh water.
>
> 4. The underground wealth of mineral, salt, and oil.
>
> 5. The availability of good labor, both skilled and unskilled.

"Now, these five basic factors as a combination form the Mobile 'personality.' Many other cities with whom Mobile competes have one or more of these same attractions, but very few have them all. This combination, not the individual items, is Mobile's uniqueness.

"When pollution exists it is usually caused by the activities and demands of people -- people who drive cars, people who flush wastes down sewers, dispose of garbage and refuse, construct buildings and roads, transform materials and produce goods. Even nature contributes. Consequently, all of us are involved and must bear responsibility.

"We must not take the narrow definition of pollution to mean that anything which is not absolutely pure is therefore polluted. Instead, there must be a practical consideration of the 'degree' that will be acceptable, because if there are hundreds of thousands of people with all the jobs and industries needed to support them, there is bound to be some lessening in the purity of water and air. Part of the purity simply must be selectively used.

"However, the secondary aim of having an attractive place in which to enjoy the gains of new jobs is also very important, and every effort must be exerted to keep the degree of purity at as high a level as is practical.

"This practical level will not necessarily be the same with our cities with industry as with conservationists, and probably will always be somewhere between.

"Therefore, the Mobile Area Chamber of Commerce:

1. Recognizes the importance of maintaining a good level of purity for both air and water, and will lend assistance in maintaining it;

2. Will continue to encourage and actively persuade all local municipalities to treat the domestic wastes to protect the health of the community;

3. Will actively encourage new industry to observe a 'good citizen' policy with respect to purity;

4. Will talk with our established industry and work with them to do those things that are necessary to maintain reasonable and acceptable degrees of purity;

5. Recognizes that new Federal laws will require the State regulations to contain criteria which establish minimum standards, and positive steps are being taken by industry to comply;

6. Recognizes that immediate restrictive laws would be disruptive to our economy, and therefore supports the policy of giving existing industry and municipalities necessary time to work out their problems;

7. Believes that different geographies and different conditions demand different solutions and feels strongly that State authorities must have the responsibility and authority for establishing criteria and standards for the environmental quality desired for their particular communities;

8. Believes that the most beneficial role of the Federal government in matters of environmental management is that of providing technical assistance and consultation;

9. Points out that there are different ways of lowering purity of water -- that is by untreated domestic wastes, by toxic materials, by lowering oxygen, by adding color, et cetera -- and that there is a difference in the urgency to take corrective steps between the various types;

10. Recognizes that the state of the art relative to pollution is, in fact, in its infancy, and we encourage and support all possible technical progress in this field;

11. Recognizes the potential emotional content in any discussion of purity of the water, the inevitability of the spread of rumor, and that in our attempts at resolution we will guard against indulging in the emotional, and that we will conscientiously attempt to work only on facts.

"The objective of the Mobile Area Chamber of Commerce is an environment that will produce the greatest net benefit to our total community. The above statements are vital to the Chamber's organization and everyday working operation of developing a total community.

"In conclusion:

1. We are convinced that Alabama is well in advance of the neighboring states with respect to the abatement of pollution, particularly in the estuarine areas, as is evidenced by the fact that the cities on the estuarine waters which have installed sewers are also giving the equivalent of secondary treatment to the domestic wastes, and most industries on the estuarine waters are treating wastes, some to a very high degree. Those which are not now treating are under orders from AWIC to provide facilities equivalent to secondary treatment and have had an imposed time limit within which to accomplish construction.

2. The changes in the State law as amended in 1965 are now showing drastic results. Since all cities and industries are required to provide secondary treatment, or its equivalent, to their waste discharges, we believe that these new laws will accomplish a great deal in further abating pollution. Within these time limits of the law, the cities and the industries should be able to work out the financial arrangements that are necessary for the accomplishment of the abatement.

3. We are of the firm opinion that the new State law is adequate and should be given a fair chance to accomplish results before any other changes in law or composition of regulating bodies be even considered.

4. We think that the classifications adopted by the Alabama Water Improvement Commission for the estuarine waters in this area will result in a great improvement, and we recommend that they also be given a fair chance to work before any changes are even considered.

5. We strongly recommend that all matters pertaining to these estuarine waters be administered by the State and that the Federal government be asked to serve only in the capacity of advisor and consultant.

6. We are of the opinion that a comprehensive study and research of estuarine waters and ecology is needed and suggest that the Federal government cooperate with the State agencies in making these studies.

"The objective of the Mobile Area Chamber of Commerce is an environment that will produce the greatest net benefit for our total community. To create this, the total resources and talents of this community must be joined together.

> "The community must unite in a partnership of concerned citizens, businessmen, and public officials to utilize all necessary scientific, technical and legal talent needed in setting reasonable and adequate standards for maintaining an environment that will produce the greatest net benefit for all Mobilians."

Thank you very much for letting me speak.

MR. THOMAN: Thank you very much, Mr. Little. Are there any comments or questions? If not, we will move on to Mr. William Holland. Mr. Holland, you represent the New Industry Committee. Are you the Chairman of this Committee?

MR. WILLIAM HOLLAND: Vice Chairman.

MR. THOMAN: Vice Chairman. Go ahead.

MR. HOLLAND: Mr. Chairman, ladies and gentlemen, my name is W. H. Holland, Vice Chairman of Task Force 200. As spokesman for the New Industry Committee of the Mobile Area Chamber of Commerce, I wish to tell you of some of our work, what we are trying to do, and ask that you consider the importance of our work to the economic well-being of the entire area. I also wish to show where industry fits into the overall picture of economic growth as it relates to water resource utilization.

Our Committee executes a highly organized economic development program for the Mobile River Basin and its environs. The Committee consists of more than 150 volunteer members from the business and professional community; members who give most generously of their time and money toward the development of economic growth that means more jobs, more money, and a higher standard of living for all Mobilians.

The direction of our efforts has been influenced by these principal factors:

1. Mobile is first and foremost a port and always will be;
2. The millions of acres of trees surrounding the Mobile area;
3. The tremendous quantities of fresh water;
4. The underground wealth of minerals, salt, and oil;
5. The availability of good labor, both skilled and unskilled.

These five basic factors taken together as a combination form the core of our particular area personality. This combination is what we sell, and it has had tremendous influence on the basic type of industrial growth we have achieved.

Our prosperity is built around utilizing these advantages that are ours. We must consider for a moment the consequence of their non-use.

What good is a port with no ships or barges?

Vast forests of virgin timber are beautiful to behold and are a source of joy, but unless they are selectively used they create no wealth.

Billions of gallons of fresh water may rush by in a river, and insofar as the economic welfare of the people who inhabit its banks is concerned, it has little economic value unless part of it is selectively used. A prime example is the Amazon.

The same is obviously true of minerals and labor.

Our efforts also have been based on the basic premise that Mobile's prosperity depends on the establishment of new industry and the expansion of present industry.

Our success has been measured by an accumulation of $340 million in new and expanded industry since the program's inception in the spring of 1965. Recent acceleration of this activity has been shown by record levels of $122.4 and $122.5 million in the respective years of 1966 and 1967.

Direct job benefits from these capital investments are shown as an increase in Mobile's manufacturing employment of 19% in the past four years. Jobs created by these capital dollars also accrue other benefits to the entire community, including the wholesale and retail establishments; professional and specialized activities; as well as city, county, and State governments through tax revenues received.

The waters of the Mobile area are vital to Mobile and its business and industrial community. These bays, lakes, rivers, and streams provide an abundant water supply for industry and support a significant seafood and recreation activity.

Adequate water available for processing and transportation is one of the main factors contributing to the success of the Chamber's industry-hunting efforts. For example, there are presently more than 20 major industrial installations directly on Mobile Bay, the Mobile River, and their tributaries, representing a total capital investment of over a quarter of a billion dollars and providing more than 23,000 direct jobs.

Significant steps toward waste treatment have been taken by industry, both voluntarily and under force of authority of the Alabama Water Improvement Commission.

The Alabama statute establishing the Alabama Water Improvement Commission, as amended in 1965, gave this regulatory body broad powers over all water-using industry, including that formerly exempt under the so-called "grandfather clause."

The Commission is required by the law to meet only twice each year, but in actually meeting almost monthly, we believe it is dealing firmly and fairly with all persons under its jurisdiction.

As an example of the effectiveness of the law under which this Commission operates, every industry located on the rivers and the bays previously mentioned that are discharging an effluent are either operating under a permit requiring secondary treatment or have submitted plans as required by the law for construction and operation of facilities providing at least secondary treatment or its equivalent. This will result in further abatement.

The Mobile Area Chamber of Commerce, noting the progress toward pollution abatement both in the Mobile area and throughout the State, feels that 1) the present State law provides adequate authority; 2) the existing mix of interests constituting the Commission ensures fair and impartial enforcement; and 3) the technical staff of AWIC is superior to most.

We suggest that any recommendation your group makes recognizes that the AWIC already has assigned classification to the waters of this area (including estuarine) that will support present and future uses and that final authority for enforcement should continue with the Alabama Water Improvement Commission.

We also recognize that the Federal government has a meaningful role in these matters and suggest that you may be of great assistance to the various states and localities by providing those resources for the research so essential to develop adequate technology in various fields of pollution.

We shall continue to encourage all involved to effectively use our valuable water resources for the highest economic, social, and esthetic benefit of the entire community.

This is given in an attempt to show that consideration need be given to all facets of our society in the use of water.

MR. THOMAN: Thank you very much, Mr. Holland. Are there any questions? If not, we will proceed on to Dr. James V. Walters, also representing the Mobile Area Chamber of Commerce.

DR. JAMES V. WALTERS: I am James V. Walters, Professional Engineer. I speak today as the Environmental Engineering Consultant to the Mobile Area Chamber of Commerce.

The aims of society, its governments, and its institutions are to aid or allow each individual to live his life as best he can. The primary goal of society then must be production, because we individuals cannot have and use the goods and services we need unless they are produced, delivered, and/or rendered.

Water resources, to be of value, must be used selectively and rationally. With our population and water use demands growing, we recognize the necessity of increasing application of the concept of balanced multiple use in the management of our waters.

My appreciation of the somewhat competitive beneficial uses of Alabama's estuarine waters causes me to rank them in order to decreasing value of importance and socio-economic impact as: public water supply, industrial water supply, navigation, recreation, and seafood production. Fortunately, demands for the competitive uses are often geographically separated.

It is evident that the estuaries of our Nation are similar enough that we, by usage, have collected them under the name "estuary." Despite this convenient grouping, we must remember that each individual estuary has important unique attributes.

Our Alabama estuaries are mostly shallows which normally experience minimal tides and maximal wind effects. During the earlier hearing at Biloxi, Mississippi, Dr. Walter Abbott referred to an important result of the various unique attributes of some specific estuaries. His discussion of hypereutrophication as affected by nutrient concentration and turbidity as well as his other examples, highlighted the generalization that because the particular estuaries do possess unique attributes, it often is unwise to assume that operating characteristics and theories of operation developed during the study of estuaries in one location can be extrapolated for immediate use in the management of estuaries in other geographic locations.

The difficulties attendant unto such extrapolations of theory and operation require that plans for estuary management allow for unique solution for problems in individual estuaries. To implement and augment such management programs, additional research and study of our estuaries will be necessary at the several levels of activity.

A pertinent question of primary importance which can be answered only through research in the various locales is whether the definition of "estuary" as determined by the Congress is satisfactorily correct and desirable.

Research should allow us better means of assessment of the effects of pollutants which remain even after highly sophisticated treatment. A most important facet of the desired, improved assessment ability is that of being able to predict more precisely the margins of safety associable with each new proposal of a quantum of estuary management.

Research should hasten the use of electronic (and perhaps remote) sensing of water quality data and water translation phenomena to allow improved understanding, operation, and control of estuarine functions.

Local adoption of such techniques developed through National research will make possible the collection of sufficient basic data to document the existing conditions of water quality in our estuaries.

As the last expectation of research which I shall mention, we critically need better methods and criteria for the monitoring of shellfish production. Additional Federal encouragement should be provided for scientists now working in the area of this problem.

Your invitations and announcements pertaining to the meeting here today included requests for statements concerning the best means and methods of estuarine management. Reason and socioeconomic practicability are the paramount principles upon which our estuarine management must be based.

Additional acceptance of the principle of seeking the greatest good for the majority leads to the corollary that the best possible management is to be expected from the competent agency which is most closely located to and is most intimately involved with the problems of the estuary which is to be managed.

In some portions of the law under which this meeting has been called, estuary use management is spoken of as if it is a function yet awaiting initiation. Water resource management in these estuaries is an existing function and must be considered to be such.

Under provisions of recent Alabama legislation and in cooperation with the Department of the Interior, the Alabama Water Improvement Commission has determined water quality standards for the management of our estuarine waters and other waters of the State.

In addition, the waters of Alabama have been classified by AWIC to allow optimal utilization of these waters by the people of Alabama. The standards and classifications adopted by AWIC are supportable; they are reasonable; they are practicable.

Figure 1 visually allows --

MR. THOMAN: Before you get too far, is the chart reproduced in your text?

DR. WALTERS: It is.

MR. THOMAN: It will not be printed in color. It will be in black and white.

DR. WALTERS: It will be in black and white.

Figure 1 visually allows appreciation of the effect of AWIC classification of waters in the area near Mobile. The total water surface readily inventoriable in the area is 403,100 acres. That is about one acre of water surface for each person living in Mobile and Baldwin Counties.

From this total, 402,000 acres have been reserved for use which provides for the cultivation of fish and wildlife. That amounts to more than 14 acres for each sportsman who purchased a hunting and fishing license in Mobile County last year.

Uses which provide for swimming and other whole-body contact sports have been prescribed for 354,000 acres. That is more than 31 acres per registered Mobile County boat owner or slightly more than three acres for each boat registered in the State.

Shellfish harvesting has been provided for in 287,400 acres.

By comparison of vastly different magnitudes, we see that only 1,090 acres have been restrictingly designated for agricultural and industrial water supply.

Restriction for public water supply utilization was necessary for just 716 acres, and only 37 acres have been dedicated to the best use of navigation.

As an adjunct to this inventory, I recently studied with staff members of AWIC and the State of Alabama Department of Conservation all those locations within the area covered by this inventory at which episodes of pollution not precipitated by hydrologic phenomena have occurred during approximately the last five years. The total area affected by these pollution episodes was only 2,442 acres, approximately 6/10 of 1% of the total surface area mentioned above.

The inventory summarized in Figure 1 provides a new and quantitative perspective for our appreciation of water quality in the Mobile area.

Allusion was made above to the causative relationship of Federal law to stream classification by AWIC. While it can be correctly stated that the supportable standards and classifications adopted by AWIC are the direct result of Federal laws, it preeminently must be recognized that the results now seem to be taking place were already beginning to happen and would have been carried to comparable satisfactory conclusion under State law in the absence of the overriding Federal laws which came into existence primarily because of unsolved and/or unattacked pollution problems in other geographic areas.

Considerable pollution abatement progress is being made under our present system of water resources management. Additional time for continued operation is necessary to exhibit fully the fundamental value of the present system. The present system and personnel are worthy of our continued support and a full evaluative trial over a longer term before any changes of responsibility are proposed. Full responsibility for the management of our estuaries should continue to rest upon AWIC.

The Federal agencies, similarly, have continuing responsibilities. The present degree of public awareness of water pollution control problems is largely attributable to efforts of FWPCA and its sister agencies. Their responsibility for publicizing problems continues. A most helpful facet of such activities is to educate the public in the possible solutions of the problems and costs associable with each proposed alternative.

The Federal agencies should be encouraged to continue their research in estuarine phenomena and solutions to problems which can be generally extrapolated to a majority of the Nation.

The complementary function is to encourage and support local practitioners in education and research efforts as they center their activities upon the unique attributes of the local estuaries. Thank you.

MR. THOMAN: Thank you very much, Jim. Are there any questions? Do you have any questions, Dr. Myers?

DR. MYERS: I think one thing this chart points out -- this is the first time I have seen this particular type of graphic chart. It does point out where we do have problems. Those may be the areas where we can concentrate our attention and accomplish the most good in the shortest period of time. And I think that always the identification of where our problems lie, and where they do not lie, is of specific assistance to us if we are in an enforcement procedure.

DR. WALTERS: If I might, I would like to point out that in the transcript of the public meeting at Biloxi, on page 45, the last sentence, I think it was probably my fast Southern accent that threw you off a little bit. I meant to say that, "We further feel that the discussions about the use of this water resource (not 'source') will best produce the greatest income and social use of the resource for the people in the area if it can be governed by the governed (not 'governed by the government')."

MR. THOMAN: We will correct the record. Let's go off the record just a moment.

(Whereupon discussion was held off the record.)

DR. JOHN M. RAWLS: I have a question.

MR. THOMAN: If you would like to speak later on --

DR. RAWLS: I would like to address a question to this speaker.

MR. THOMAN: We haven't been doing this. What is your name?

DR. RAWLS: Dr. John Rawls, and I am speaking now for myself. We have heard a lot about zoning water; it's difficult for me to understand how you can zone water. How do you propose to keep water that has been classified as that which can be used for industry -- how do you propose to keep that water out of the areas that you classify for wildlife and fish and for swimming and for such as that when that water is constantly moving?

DR. WALTERS: In direct response to that question, I don't believe that is proposed.

MR. THOMAN: Thank you very much.

Next I would like to call on Mr. Ben Kilborn, representing the Alabama Wildlife Federation. Mr. Kilborn.

MR. BEN KILBORN: Mr. Chairman, I feel that I must reply to one or two items and points that have been made here today.

First of all, I should identify myself. My name is Ben Kilborn, and I speak here today on behalf of the Alabama Wildlife Federation. I am a past president of the Mobile County Wildlife and Conservation Association, and I am presently a director of the Alabama Wildlife Federation.

I would also at the conclusion of my talk, if I may, Mr. Chairman, be allowed to read into the record a statement which was sent to me from Birmingham by Mr. Don Drennen, Jr., who is connected with Ducks Unlimited. And he would like his entire statement read and asked if, with your permission, I would be allowed to do that.

MR. THOMAN: That would be fine.

MR. KILBORN: I would also like to show that at all of these hearings we are faced with the power structure. I didn't come here to make love with anybody. I came here to make the point from the wildlife viewpoint, and that's going to require a few statements.

We have here the articulate and paid representatives of the International Paper Company, who have been polluters for years, and now they are all with clean water. We have statements from the officials of Tenneco Chemical Company, who I am sure will go on record for clean water although they have killed several thousand fish this year. We have here a statement from Scott Paper Company, also one of our polluters.

Gentlemen, it becomes obvious to me as I hear this that the power structure, through the Mobile Chamber of Commerce, they will not -- they are not serious when they say they want clean water. They say this; they imply to you that they want clean water. But if you interfere, if you have clean water, that's going to, in effect, stop progress, and we can't have this clean water that you're asking for.

It's interesting to note that the Chamber of Commerce today praised the 1965 Alabama Water Pollution Act which they actively opposed. It's interesting to see that Associated Industries went on record in favor of this wonderful Act which they actively opposed. And I point out one of the difficulties of these hearings. I look at your panel, and I see Dr. Ira Myers, who also is appointed by the governor and who also opposed the deal in 1965 and who led the fight against it.

Certainly, these gentlemen --

MR. THOMAN: Mr. Kilborn --

MR. KILBORN: I had to make those remarks.

MR. THOMAN: If you would -- just because Dr. Myers or any other public servant opposes something at the time it goes through, doesn't mean that once an act becomes law that he doesn't enforce it.

MR. KILBORN: I didn't say he didn't enforce it.

MR. THOMAN: But please, let's not let the implication be there.

MR. KILBORN: Our main objection in Alabama is that we will never have adequate pollution control until we have 1) a strong pollution law, which we do not have, and 2) an impartial board enforcing that law.

The present makeup of the Alabama Water Improvement Commission is that eight of the ten people on the board represent polluters and not the people. That's a matter of record. And, certainly, they want the State to continue to control the pollution law, because they control the pollution control board. I think in connection with this, Mr. Chairman, that this points out the necessity of Federal intervention in this area.

If we are going to have an adequate pollution control law in Alabama, I don't believe it can be carried out under the present legal setup. Now, the pre-hearing material which we received indicated that the records of the hearings held in Bay Minette and Mobile in January of 1967 to establish water quality standards were on file and would be considered and, therefore, to avoid repetition, should not be repeated. So I will not go into that.

But it is our understanding that for the purposes of this hearing the six assumptions contained on pages 5 and 6 of the booklet entitled "National Estuarine Pollution Study" will be used. So I will not review those. But, I do make the point that pollution, of course, is the problem, and we need to have a strong pollution law and strong enforcement of it before we can have any estuarine area at all.

Conservationists in conjunction with the Alabama Conservation Department are still fighting the adoption of the Water Quality Standards for Alabama submitted to the Federal government by the Alabama Water Improvement Commission. As a result of this fight, approval of Alabama's standards has been withheld until Alabama adopts the "nondegradation clause." Also, the criteria for temperature and dissolved oxygen as set forth in the "fish and wildlife" classification and in the higher "recreation" classification have not been approved.

The Alabama Wildlife Federation supports you in your continued opposition to the dissolved oxygen and temperature criteria as submitted by the Water Improvement Commission. The Federal Water Pollution Control Administration will be wise to require the upgrading of these criteria to conform with the recommendations of the fisheries technicians of the State Department of Conservation. If this is done, they will also be conforming to the recommendations of the National Technical Advisory Committee, which was established to advise the Federal Water Pollution Control Administration on criteria needed to protect our fish populations.

This action is imperative if our fisheries resources are to be protected in those waters classified as "fish and wildlife." Anything less than this will not result in adequate protection to our fisheries resources and, in my opinion, will not conform to the intent of the Federal Water Pollution Control Act of 1965.

Since the January 1967 hearing, Mr. Chairman, we have had many, many fish-kills here in the Mobile area. Alabama in recent years has gone from 36th in the Nation to third in fish-kills.

And yet, we are relatively a non-industrial state. In excess of 3.5 million fish have died in fish-kills this year in the Mobile area alone! Possibly Alabama -- a relatively non-industrial state -- will rank number one in the Nation in fish-kills in 1968.

Why is this? Because, to repeat, the polluters control the pollution control board in Alabama. The Alabama conservationists look hopefully to the Federal Water Pollution Control Administration and the 1965 Water Quality Act for relief. We hope to get action and not just more words.

Now, there is a great need and demand for the industrial development in Alabama, and we certainly want to see it. But we hope that it will be done in such a way as to not wreck our natural resources. As recently stated in the magazine of the National Wildlife Federation, "Conservationists are not blindly against progress, but they are against blind progress."

Obviously, we have failed to educate the public as to the great value of our seemingly worthless marsh. If we are to get the public support which will be needed to preserve our estuaries and stop pollution, we must put top priority on convincing the public we can't afford to lose these estuarine areas.

Proper planning and/or zoning are a must if we are to have pollution control. We would not dream of installing a factory in a prime residential area. Yet we do not hesitate to put a factory in an invaluable marsh which cannot be replaced. There are many places where new factories, water-using industries, can be located where it will be possible to install complete and adequate treatment facilities and at the same time not destroy our estuarine areas.

Oftentimes too many plants are placed in one small area of one stream, viz, Chickasabogue Creek here in Mobile where the huge Scott Paper Company and International Paper Company plants are located a short distance from each other on the same stream. This must be avoided in the future.

Location of pollution control facilities must also be planned. Sometimes sewerage treatment plants are located in areas and on streams where they cause more pollution than they thought. For instance, one of our Mobile sewerage treatment plants which was constructed some years ago on Eslava Creek has, itself, been the cause of innumerable fish-kills.

Farsighted and competent planning would have prevented its location in a highly desirable recreational area. We certainly concur that the planning for pollution control must be on a regional and national basis as well as state basis if our estuarine areas are to be protected.

For instance, the water which drains into the Mobile Delta comes from many states and long distances. It is not reasonable to expect that our estuary can be kept clean if Mobile cleans up. We must be assured that all waste dumped into all streams which eventually flow into Mobile Bay receives the highest and best treatment possible.

Water pollution is much in the news, and particular attention should be given to it. Again, strong laws and strong enforcement must ensure that any off-shore exploration in drilling for oil and any which might take place in the Mobile Delta area or Gulf will be allowed only under the strictest supervision to ensure no oil spills will take place.

Ships and barge traffic into port must be closely supervised. Docks where oil is loaded and unloaded should be regularly inspected and strictly controlled. Barges transporting oil should be strictly regulated. The development of the Theodore ammunition depot industrial complex on Mobile Bay is presently underway. Numerous incidents of oil spills in loading and unloading oil for the refinery in this area have already taken place. This must be stopped. Effective ways of preventing repetition of these incidents must be found.

Encroachment on the estuarine area must be stopped. A line must be drawn. The enormity of this encroachment can be seen only when you compare one year's encroachment with the previous year, and so on.

Zoning to ensure that estuarine areas will be maintained in their natural state is one possibility. Acquisition of easements such as "scenic easements" so as to draw a line around our delta areas to keep out possible future encroachment is another.

But, if the estuarine areas are half as valuable as we are told, then we must find a way. Federal matching funds, such as used in the highway programs, are possible solutions.

Being a national asset, the cost of this should be borne by citizens throughout the Nation and not just those in the estuarine areas.

Mr. Chairman, I don't want to take up too much of your time, but I would like to point out that this dredge spoil is an acute problem in the Mobile Delta. The River and Harbor Act of 1954, which authorized the deepening of the Mobile ship channel and harbor, stipulated that both new work and maintenance dredging spoil was to be deposited on areas furnished by local interest.

Local and State officials faced with the necessity of maintaining and improving the ship channel, which is absolutely necessary to the economic life and survival of our community, and not having funds available to transport this spoil any great distance, cast around for a cheap, convenient, close spot.

Polecat Bay, our western-most delta bay and one of our largest, was chosen. This Bay more or less parallels the harbor. In 1963 the State, through the State Docks Department, signed a 25-year agreement with the United States Engineers to deposit spoil on Blakely Island adjacent to Polecat Bay.

Spoil started flowing into the Bay as a result of the joint action of the Federal government, acting through the United States Engineers, and the State. Today spoil again is running into the Bay, although this time the United States Engineers did require a dike to be constructed around the Bay. This dike has broken in several places, and the spoil continues to go into the Bay.

The ruination of this Bay stands as a classic example of the ignorance of man and the wanton destruction of our irreplaceable natural resources in the name of progress. I invite -- indeed I challenge -- you to personally inspect this classic example of environmental mismanagement while you are here in Mobile. This spoil is filling the Bay while we talk.

The bitter pill in this tragic story is that under the decision of our Alabama Supreme Court, the adjoining property owners will become the owners of this filled-in Bay, the bottom of which formerly belonged to the State of Alabama.

Dredge spoil in the open Bay is also a problem. The practice is just to dump it along the existing channel. This must be stopped. A better way to dispose of spoil must be found. It either must be taken to the Gulf and dumped, which the State can't afford because of the tremendous cost, or disposed of in a way to enhance the Bay's recreational value and benefit its wildlife. The Mobile County Wildlife and Conservation Association today has presented for your consideration one possibility. One thing for sure, we can't just keep dredging and dumping like we have in the past.

Another problem is presented by the oyster-dredging operation which has been going on for some years in Mobile Bay. The operators claim they take no live oysters, and this is probably correct. I understand an application to extend this permit is presently pending before the U. S. Engineers. This application should be closely reviewed by you as well as by the U. S. Engineers before it is extended.

I am not suggesting that this operation should or should not be allowed. What I'm saying is that the effect of this shell-dredging operation on the basic ecology of Mobile Bay should be carefully investigated. The effect of the silting it causes, if any, on any oyster production and duck vegetation in the Bay should also be studied.

Walter Beshears in his report to the Technical Section, Mississippi Flyway Council held in Mobile in March of 1966, reported on page 10:

> "There is no mud shell or mineral industry in the Delta above the causeway. However, exploration for oil and gas have been made and are being made at the present time.
>
> "Shell dredges are encroaching closer and closer to the causeway in the open bays to the south. They are now within the three-mile limit and are beginning to destroy the outer reaches of vegetation growth. (See Exhibit 4)"

"Suicide in the Shallows," an article in the June-July 1968 issue of the National Wildlife Federation magazine, reports on the concern oyster dredging is causing throughout the Country, the subject article spotlighting oyster-dredging operations in Galveston Bay.

If the similar operation in Mobile Bay is adversely affecting the ecology of Mobile Bay, it should be stopped. If not, it should be allowed. Any investigation should be made by an independent agency such as yours.

The Seafood Division of the Alabama Department of Conservation should not be the agency which conducts this investigation, since it shares in the proceeds of this oyster-dredging operation.

There are many more estuarine problems which cannot be discussed within today's time limit, but to summarize, if we are to keep our estuaries we must:

1. Stop pollution and clean up our water, nationally as well as locally. This can be done only through strong pollution laws, strongly enforced.

2. Encroachment must be stopped by zoning, acquisition of scenic easements or estuarine easements, or other eminent domain proceedings.

3. Dredging and spoil disposal, public and private, must be strictly regulated and controlled so as to ensure the preservation of the estuary.

4. No practice which will adversely affect the ecology of estuaries should be allowed.

Mr. Thoman, that concludes my statement. (Applause)

MR. THOMAN: Thank you very much. Do you have a complete copy of that?

MR. KILBORN: I have several exhibits.

MR. THOMAN: That will all appear in the record. Do you want to proceed with the other statement?

MR. KILBORN: Yes, I would like to proceed with that.

MR. THOMAN: First, are there any questions?

DR. MYERS: I would like to clarify the record at this point. I am Dr. Ira L. Myers. I am elected by the State Board of Health. I am not elected by the governor, either past, present, or future.

I would also like to clarify the record by saying that the Water Improvement Commission has, in fact, adopted an anti-degradation clause, and I want that to be known.

MR. KILBORN: Glad to hear that.

DR. MYERS: I would ask one question. On what basis does the Dog River sewage treatment plant create more problems than they have solved?

MR. KILBORN: I am very pleased to hear that you have adopted a non-degradation clause, because I knew there was a lot of negotiations back and forth on that point. I didn't realize it.

This sewage treatment plant, as you know, Doctor, has been attributed to several of the fish-kills in that area. Residents who live in that area tell me in addition to killing fish, that there is a terrible odor and unsightly green scum on the water from, I guess, the phosphorus or whatever the chemicals are that do go into the water.

They tell me, and I don't know, that this sewage treatment plant that they put down the Bay, that the outfall does not go out far enough in the Bay where the tide will carry it down.

I think that really the location of these plants should be seriously considered. I can't stress too strongly my personal opinion of the necessity of long-range planning on these matters.

MR. THOMAN: Do you have anything further? I want to make a comment, and this is not to offend anyone, but up until rather recent time, the last two years, the Federal Water Pollution Control Administration did not enter into the review of other activities of other Federal agencies. Since that time, acting in accordance with the Federal law, there has been an Executive Board. We are now reviewing dredge and fill permits being issued by the Corps of Engineers. I would be less than candid if I didn't tell you this is being tested in court. A preliminary hearing has been set; I think it is actually going to trial sometime in December in Tampa, Florida.

The whole question of dredge and fill and its effect on the ecology of areas is one of the two hottest pollution control issues in the United States today. The other one is thermal pollution, and I think it is going to get even hotter.

Mr. Kilborn, why don't you go ahead and present the other statement now.

MR. KILBORN:

"My name is Don Drennen, Jr. I own and operate Don Drennen Motor Company, a new car dealership in Ensley, a suburb of Birmingham, Alabama. I also am an avid sportsman and conservationist, as was my late father before me, Don Drennen, Sr., a former president and long-time director of the Alabama Wildlife Federation.

"My favorite sports are hunting and fishing. Members of my family have a preserve of several hundred acres at Boligee, in Green County, Alabama, which is managed for hunting and fishing. One of the major projects currently underway at this place is the raising and releasing of several hundred ducks and geese each year.

"Now, I would like to proceed with the main purpose of my appearing before you at this public hearing today, and that is to express my deep concern about the problems of pollution in Alabama's estuarine areas in the Mobile River basin and Bay area.

"As Chairman of Ducks Unlimited for the Birmingham area, I am especially concerned about the detrimental effects of pollution on the aquatic habitat of the Mobile Delta. Recent reports of Conservation Department specialists and others show that pollution is interfering with the growth and natural succession of plant life which serves as food for waterfowl. The gradual destruction of favorable plant life is causing fewer and fewer ducks to spend the winter in this area.

"Polecat Bay is almost devoid of submerged aquatic vegetation. Spoil from the dredging of Mobile River and wastes from the Aluminum Company of America's settling basin have almost totally destroyed the Bay's value as a fishing and waterfowl area.

"Grand Bay, Chuckfee, and other bays in the Delta, especially along the western side, are seriously threatened at this time.

"I am greatly concerned about the effects of pollution on the shellfish and other fisheries in the Mobile Delta, Mobile Bay, and other coastal waters. These estuarine areas of salt meadows and coastal marshes, inter-tidal areas, bay waters, and tidal fresh-water streams produce a greater tonnage of fish and shellfish per acre than any other aquatic environment.

"A great majority of the commercial fish, marine sport fish, and shellfish live in the estuarine environment during some period of their life. Estuaries are absolutely necessary for shrimp, oysters, and menhaden and some other species. If we allow the estuaries to be polluted much more, these valuable species will vanish.

"Now, I do not profess to be an expert in the field of wetland and estuarine ecology or to know the absolute requirements of the life forms that live in these waters. This field is so complex in nature that only the marine biologist and others that have studied it know the problems involved and are qualified to make specific recommendations to preserve the estuaries in a condition favorable for the growth and propagation of the aquatic life.

"For this reason, it is imperative that recommendations of these specialists for water quality be accepted. Stringent laws must be formulated and applied to curb the pollution of these waters and to assure the proper water quality. Food chains for larval species in the form of microscopic biota must be protected, since they are more important in these areas than in waters that are completely fresh or salty. Requirements for the least tolerant species in this environment must be met when water quality criteria are set.

"Some areas in Mobile Bay have been closed permanently to the harvest of oysters because of bacterial pollution. Since 1964, a major portion of the remaining productive areas of the Bay and coastal waters has been closed temporarily for several months at a time.

"The Mobile River basin and Bay area and coastal waters are among America's most important recreational areas. The eastern shore of Mobile Bay has been completely built up with summer homes, commercial cottages, motels, and hotels for weekend and summer accommodations. The major sports activities are swimming, boating, and fishing.

"The western shore has not been developed so extensively. This lack of recreational development may be attributed directly to the large amounts of industrial and domestic waste dumped into Mobile River on the western side. Some sites developed in the early 1900's have been abandoned in recent years. Yacht clubs and fishing clubs have been forced to move. This water is presently so heavily polluted and smells so bad that it literally makes people sick to be near it, much less swim or play in it.

"In 1959, the commercial fishery of Alabama's estuaries was valued at about $4 million and the sports fishery at about $6 million according to the estimates given in a report by the Alabama Department of Conservation's Game and Fish Division. Waterfowl and other hunting was valued at $185,000.

"An economic survey by the Conservation Department's Seafoods Division in 1960 placed the value of the seafoods industry at about $15 million. It has increased to about $20 million annually at present.

"Commercial and sport fishery values have increased substantially. Hunting -- especially waterfowl -- has perhaps decreased to some extent. Oyster shells dredged from the bay bottoms are valued at nearly $3 million per year. Sand and gravel are worth more than $100,000 each, and oil and gas leases amount to about $110,000 annually. Altogether, the natural resources of these estuaries are worth almost $40 million per year today.

"The value of pleasure boating, skiing, picnicking, and other vacational activities is unknown, but it would almost certainly exceed $50 million annually.

"Thus, in Alabama's estuaries the natural resources and recreational values alone are worth nearly $100 million each year.

"Needless to say, Alabama's estuarine areas have many other uses of great economic and esthetic importance. Due to their proximity to the Gulf of Mexico, they possess unique characteristics with almost limitless potential and opportunity for development.

"The key to the realization of this potential, however, is pollution. Unless high standards are set to control and lessen the amount of pollution in these waters, there will be no further increase in value, and present values will inevitably decline.

"To repeat a phrase that is often used these days to describe a variety of things, we are 'at the crossroads' in this matter of pollution. It goes without saying that many diversified interests must be allowed to use Alabama's estuaries in a variety of ways. The only program that can possibly be followed, therefore, is one of multiple-use management.

"The projected population estimates show that the Mobile area alone will double by the year 2000. There also will be greatly increased industrial expansion. If the water needs of the people and industry are to be met, then we must act now and set high standards for water quality. We must keep in mind what President Johnson said when he signed the Water Quality Act into law -- 'The waters of America belong to all the people, and no one has the right to destroy this public property.'

"Of course, we all know that it is going to cost a great deal to clean up our rivers and streams. Municipal sewage treatment and industrial waste treatment facilities that will be necessary to do the job will cost many millions of dollars in the Mobile area alone. The cost of such facilities will most certainly be passed on to the people. But the people of Mobile have demonstrated that they want clean water, and I believe that the people are ready to pay the cost.

"Very sincerely, (signed) Don Drennen, Jr."

I appreciate the opportunity of appearing before you.

(Whereupon discussion was held off the record.)

MR. THOMAN: I think, since we have nine or ten additional people who wish to testify, that maybe we'd better take a lunch break and reconvene at 1:30.

(Whereupon the meeting recessed at 12:18 o'clock p.m.)

THURSDAY AFTERNOON SESSION

November 21, 1968

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The public meeting directed toward obtaining contributions from Alabama interests regarding the National Estuarine Pollution Study, being conducted by the Federal Water Pollution Control Administration, convened in the Ballroom of the Admiral Semmes Hotel, Mobile, Alabama, Thursday afternoon, November 21, 1968, and was called to order at 1:30 o'clock p.m. by Regional Director John R. Thoman, Southeast Region, Federal Water Pollution Control Administration.

MR. JOHN R. THOMAN: Let's come to order. I would first like to call this afternoon on J. L. Coley, representing the Alabama Textile Manufacturing Association.

MR. J. L. COLEY: Mr. Chairman, members of the panel, ladies and gentlemen, my name is Lem Coley. I am Vice President, Russell Mills, Inc., Alexander City, Alabama, and I appear before you today as the representative of the Alabama Textile Manufacturer's Association.

To some of you it may appear unusual that an inland group of industrial firms, such as the one I represent, has accepted your invitation to appear here. Our Association has a long-time interest in all resources of our State, including the estuarine waters. This interest and concern has been demonstrated by the millions of dollars that our textile companies have spent to preserve water quality in all areas.

Not only have we as individual firms made large capital investments and budgeted significant sums of money for operating costs of treatment facilities, but as an association we have helped in the promotion of legislation to make effective the water quality criteria for Alabama.

The waters of our State and Nation are used for many different purposes and rightfully so. No single special-interest group, whether that interest be recreational, industrial, municipal, transportation, or other, should have the exclusive use of any major body of water.

It is imperative that in the study of estuarine systems that the full range of social and economic values be taken into consideration and that plans be made for the continued multiple use of the waters. Because of the complex nature of the estuaries and the many variables that must be taken into consideration, we feel that additional research in regard to these waters is indicated.

Because of the importance, both socially and economically, of our estuarine waters, we feel that this research should make full use of the knowledge, experience, and facilities of the various agencies of the State of Alabama, including the Water Improvement Commission, as well as the research staffs of the universities of the State of Alabama.

We would like to call to your attention the work that has already been done by the Alabama Water Improvement Commission in regard to all the waters of our State, including the estuaries. Years of work directly with these waters and with the interested public and private groups were called upon in the establishment of water quality criteria by the Water Improvement Commission.

This Commission is remarkable in its devotion to the tasks of serving all of the public and preserving our water resources and the prevention of pollution.

We strongly urge that the administration and enforcement of pollution control efforts in the estuarine waters, as in the freshwater streams, be left with the Alabama Water Improvement Commission, which is capable and competent.

The Alabama Textile Manufacturer's Association appreciates your coming to our State to conduct this public meeting. We are anxious to cooperate with all groups who are interested in working toward the optimum utilization of the waters of our State. Thank you.

MR. THOMAN: Thank you very much, Mr. Coley. Are there any questions? I guess there are none. Thank you, sir.

Next, I would like to call on Colonel George B. Inge, representing the Three Mile Creek Improvement Association.

COLONEL GEORGE B. INGE: My name is George B. Inge, I-N-G-E. Mr. Chairman, ladies, and gentlemen, I am acting for the Three Mile Creek Improvement Association, and I am handing you a copy today of a petition which we presented only yesterday to the city and county governments of Mobile. This petition requests that action be taken to eliminate pollution in the stream and requests that the stream be deepened and widened in its lower reaches to reduce the dangers of periodic flooding which occurs on this waterway. This petition protests the diverting of drainage waters to this already overloaded stream and requests that the stream be policed and properly maintained.

It suggests ways to accomplish these ways. It is a reasonable and entirely feasible approach to the problem of flood control and pollution. We trust that the 675 names affixed to this petition indicate the realization of the need for and the desire for improving estuaries and that the information contained herein will prove to be of value in this important movement.

MR. THOMAN: Thank you very much, sir. Please let the record show that the petition in its entirety, plus the list of names, will be shown. Thank you very much, Mr. Inge.

I would next like to call on Mr. K. S. Chahal, representing the Tuskegee Institute. Mr. Chahal.

MR. K. S. CHAHAL: Mr. Chairman, ladies, and gentlemen, my name is K. S. Chahal, and I am representing the Tuskegee Institute.

The multiple use of estuaries makes them an important resource in the coastal areas of our Nation. There have been improvements in industry, agriculture, and, in turn, in standards of living of the people, but the improvements of water resources have been slow.

With an increase in population, the pressure on our natural resources will be such that available areas for recreation, clean water for consumption, and available food will decrease. Our natural surface waters can provide all these in the future, and estuaries will have an important role if they are properly managed. We at Tuskegee Institute feel that water pollution is the greatest concern for our future.

Our estuaries have become dump grounds for all sorts of waste. Waste from city and town populations, waste from industry, pesticides washed from the rural lands all add to the pollution of estuaries.

Although the polluting microorganisms from the organic waste are either excluded during treatment or may die during the flow of river and stream waters toward the estuaries, the dead bodies of the microorganisms and non-decomposed organic waste may use up the dissolved oxygen in the water, thus affecting the marine life adversely.

The pesticides contributing to the pollution of estuaries may enter in the bodies of the marine life. Adverse effects of pesticides usually increase in any living cells with increase in the concentration of pesticides. Synergistic effects of pesticides are also known, where the effects of the combination of more than one pesticide are more than the effect of single pesticides in the same amount. Since there could be several pesticides in the estuary waters, the study of the synergistic effects of the pesticides may be important when determining lower acceptable limits for the quality of water.

Also, the waste from cities and towns may not add any pathogenic microorganisms to the estuaries, but the waste products of those microorganisms may end up in them. Some of these products may be very potent and may have some harmful effects to the marine life or to the human beings if they enter the food chain. One example may be aflotoxins, which are produced by the fungi. In very minute quantity they may be able to produce tumors.

There may be many more compounds like these in the pollutants of estuaries. We at Tuskegee Institute very strongly feel that problems like these should be studied, evaluated, and methods should be worked out to remedy these problems to obtain a better quality of water in estuaries. We fully support any effort in this direction taken by Federal, State, local, or private agencies. Thank you.

MR. THOMAN: Thank you very much, Mr. Chahal. Are there any questions? If not, thank you, sir, for coming and being with us.

I would next like to call on Mr. Langan, who indicates he is representing himself.

MR. J. LANGAN: Mr. Chairman, ladies, and gentlemen, I have a place on the Bay Front Road about a mile south of Brookley Field, which I built there about ten years ago. During that time, fish, crabs, shrimp, and plant life were plentiful on the Bay Front Road.

Today we have very little plant life. We have no crabs to amount to anything -- maybe catch a dozen good ones the whole entire summer. There are very few shrimp there and very few fish -- no more flounders.

On the west side of the channel, the dredging has built islands from, I guess, Mobile River or from the foot of Virginia Street on down to the ammunition dump. To get into Mobile River channel from the Bay, you have to go to a marker which marks the Dog River channel, then go south from Dog River almost to the ammunition dump in order to get into the Mobile River channel. Those islands are constantly being moved by the waves from the ships and strong winds from the southeast.

I have a pier in front of my home that ten years ago I could put my outboard motor on the boat and leave from my ramp. But today, it has been filled in to about 12 to 14 inches, and I have to have a flood tide in order to take my boat out from my pier. And I think most of it is due from the islands that have been dredged up there from deepening the channel, and if something isn't done, that whole northern portion of Mobile Bay will be nothing but a flat.

MR. THOMAN: Thank you very much, sir.

MR. LANGAN: Thank you.

MR. THOMAN: Are there any questions? Thank you, again, sir.

I would next like to call on Mr. H. E. Denzler, Jr., representing the Mississippi-Alabama Division of the Mid-Continent Oil and Gas Association. Mr. Denzler.

MR. H. E. DENZLER, JR.: You all heard who I am. I don't think there's any need to repeat it.

This statement expresses the opinion of the writer concerning the importance of estuaries to the economic and social well-being of the people of the United States; estuarine degradation and ruination, which has occurred principally under the auspices and direction of political and governmental agencies; and how estuarine matters could be resolved for the benefit of the entire Nation.

Representing the Mississippi-Alabama Division of the Mid-Continent Oil and Gas Association, and particularly its Water Protection Committee, of which I am Chairman, I would like to say, first, that we welcome this Study because we are convinced that the future of our Country is dependent on the conservation of all of our natural resources, including estuarine areas, and upon their optimum usage and development.

Much has been said in the news media, at Congressional hearings, and elsewhere about the fabulous richness of our estuaries, their wildly scenic beauty, their potential to enhance and ameliorate life for all of us at home, their vital role in providing sufficient protein for the undernourished of the world, and that this priceless and irreplacable asset is being destroyed at such an alarming rate that drastic action is required immediately to preserve the remaining areas.

There is no need to enlarge upon this subject except to say that we need more than emotional statements to come to grips with the problem. We must know what has already happened to the ecology of our estuaries, as nearly as it can be determined. We must know what changes in ecology, if any, are occurring now. We must determine as accurately as possible what ecological changes will occur through proposed alterations, mostly the result of public works, in each estuarine area before the work is done. And, finally, we must recognize that our estuaries are indeed vanishing at an inexorable rate.

It is common practice to point the finger at pollution as one of the primary agents responsible for the degradation and ruination of estuarine areas. And, no doubt, municipal industrial pollution have been a factor in the past. Furthermore, pollution from these sources will probably continue for some time to come, but it can be reduced to a minimum in the foreseeable future.

Under the Clean Water Restoration Act of 1966 and other current legislation, pollution from municipal and industrial sources may soon become a negligible factor in estuarine degradation, provided the Federal government meets its commitment to provide grants for municipal sewage treatment works; and the public exhibits a willingness to do its part through individual action on the part of sportsmen, fishermen, and everyone, and through paying its share of the cost of an effective abatement program.

Significant progress in pollution abatement is being made on the industrial front, with the petroleum industry continuing its policy of maintaining pollution-free waters and spending about $425 million in the last two years alone as an indication of its sincerity in the matter. Incidentally, this is several million more than the Federal Water Pollution Control Administration granted municipalities for sewage treatment works in the same period of time, although $1.15 billion was authorized by the Congress to be appropriated; yet, municipal sewage is about 60% of the total pollution load.

However, no one should assume that estuarine problems will be solved by the complete elimination of municipal and industrial pollution. On the contrary, most of our really important estuarine areas are doomed to extinction simply because they are being, and some have already been, completely deprived of the one life-giving substance that makes them an estuary -- fresh water.

Dredging and filling are frequently cited as the chief culprits in the destruction of marine habitat in estuarine areas. In fact, the Fish and Wildlife Service of the Department of the Interior has compiled a record indicating that 568,800 acres -- 7.1% of the total basic marine habitat -- have been destroyed by these activities in the past 20 years.

These figures have been quoted many times to prove the drastic reduction in areas available to fish and waterfowl. Yet they are of dubious worth because while decrying the loss of wetlands in estuarine areas, they present no factual data on the actual damage sustained by its aquatic inhabitants. No accounting is made of social, economic, recreational, navigational, or other benefits to the public. They do not include the most important damage factor of all -- the destruction of estuarine areas caused by restricting the flow of fresh water to them by means of dams, levees, diversion canals, and other works with resulting erosion, subsidence, and starvation. And, incidentally, they do not record how much of this loss occurred under the auspices and direction of an agency of the Federal government.

From time immemorial, man has erected dams and levees, dredged channels, and built canals to divert water for his own uses. We have done, and are continuing to do, these things in the United States on a scale which would have amazed the ancients.

Yet, in no instance, to my knowledge, has any consideration been given the alteration and disruption of the ecological processes of the disturbed and related estuarine areas involved, either before work began or after it had been completed. There are many outstanding examples of this disregard of the ecological damages caused by public works.

Quoting from the Department of the Interior publication, "Man -- An Endangered Species" on page 56: "Whereas most rivers grow in size and volume as they approach the ocean, the Colorado diminishes, and today almost no water reaches the ocean at the River's delta on the Gulf of California."

The Department and its Bureau of Reclamation are quite proud of this accomplishment, and rightly so, because they have utilized the waters of the Colorado River for hundreds of beneficial purposes.

But what has happened to the estuarine area at the delta at the mouth of this river? Quoting again from the same publication on page 50: "About 65% of the United States commercial fishery harvest consists of species which spend all or part of their life cycles in estuaries. They must do so or perish."

If estuaries are so vital to fish and wildlife, the question immediately arises as to what methods have been devised to preserve any part of, or provide an alternate for, what was once one of the largest estuaries on the continent.

It is interesting to note that Colorado River water is in the process of being diverted into the Arkansas River basin, the Rio Grande River basin, and into Arizona and New Mexico. Rather than allow the Colorado River to flow backward, we will probably divert Columbia River water into the Colorado.

The Columbia River and its tributaries are being dammed to their headwaters now. From an objective point of view, it appears obvious that the Columbia River estuary is doomed to the same fate as that suffered by the Colorado.

Although there appears to be no particular awareness of the situation, the Mobile-Tensaw Rivers estuary and the Apalachicola River estuary have, most assuredly, deteriorated markedly over the past several decades. The tributaries feeding these river systems are now, or eventually will be, dammed to their headwaters.

That flow has practically ceased during the warmer months, a particularly critical time for fish propagation, on the Chattahoochee River, for instance, is evidenced by the fact that navigation on this system is severely restricted by low water about one-third of the time each year.

This process is going on all over the Country. The Bureau of Reclamation has built about 300 dams. The Corps of Engineers and the Tennessee Valley Authority have built hundreds of others. While all of these projects may have incalculable value inland, it is yet to be recognized that they may also be doing incalculable damage to the estuarine areas at the mouths of the dammed rivers.

Levees and drainage canals are another prime cause of estuarine destruction. The most outstanding example, and a National park at that, the Everglades, may be headed toward extinction because the fresh water formerly flowing through it has been diverted to the east and west coasts. Some of this fresh water is used for municipal and other purposes, but much of it is wasted. Should this diversion continue, the damage to wildlife, waterfowl, and marine life will be catastrophic, as evidenced by the changes which have already occurred.

The Mississippi-Gulf outlet in Louisiana is a noteworthy example of another way by which drastic alterations of estuarine areas are made by public works. This navigation channel is rapidly raising the salinity of the waters in many former oyster growing areas. It has so increased the salinity of Lake Pontchartrain that Spanish mackerel, pompano, and sharks, among other salt-water fish, are beginning to appear in ever-increasing numbers. And the flora along its course is changing visibly and not to the advantage of its marine inhabitants or waterfowl.

All these diversions deny estuaries the life-giving flow of fresh water which, under natural and unaltered circumstances, would provide the nutrients, sands, clays, and silts requisite to their maintenance and necessary to combat erosion and subsidence.

They further deny the estuaries the diluting effect essential in maintaining the salinities and temperatures conducive to the propagation of marine life and necessary to control fungi and parasitic organisms, such as the MSX of Chesapeake Bay, which prey upon and destroy this life.

Finally, these diversions eliminate the flushing action formerly provided by nature to remove natural and man-made pollutants.

From all of the foregoing facts, and hosts of others, it must be apparent to even a casual observer that our estuaries are indeed being drastically altered or destroyed through water starvation, erosion, subsidence, and saltwater encroachment; and that this process, in all probability, will continue as this Nation strives to survive and accommodate all of its people. This salient fact must be recognized if this and other estuarine studies are to prove of any value whatsoever.

We should be devoting our investigations to a most thorough examination of the ecology of each estuarine area. We should determine which of these areas, or parts of them, are really essential to the frequently quoted "65% of our commercial fisheries." We should discover if this 65% is a true figure; it may be very much more in some areas, and it could be considerably less in others. We should know something of the relative commercial importance of each species of fish in this percentage category. We should be investigating the actual effects of environmental change, both natural and man-made, on all the denizens of disturbed areas.

In short, we need critical information directed at the core of the matter, not meaningless statistics, in order to intelligently develop any kind of a solution to what has already become a serious problem.

While we are assembling sufficient ecological information to plan a corrective course, we need to find some answers to a number of other questions. Some of these questions may sound ridiculous, but they bear upon the subject just the same. For example:

Shall we continue to provide 625,000 gallons of irrigation water, about enough for the average family of our people for more than six years, just to raise a bale of cotton when farmers with unirrigated cotton lands in other parts of the Country are barred from planting an equivalent acreage?

Would we rather have saltwater fish in estuaries or freshwater fish in reservoirs?

Shall we pipe fresh water to estuarine areas to maintain the "fabulous estuarine richness" vital to the propagation of oysters, shrimp, crabs, and other shellfish?

Are we going to continue to provide roads, marinas, and easy access canals into estuarine areas for two million bird hunters with murderous shotguns and still wonder why the wildfowl population is declining?

Have we caused the ocean temperatures to rise because we have prevented our river waters from reaching the sea?

Are we prepared for severe climatic changes, which will surely occur if this temperature rise continues to contribute to the disintegration of ice in the Arctic Ocean?

It should be evident from the same questions propounded that the estuarine problem should be approached from two different directions. We have questions of national scope which can be answered only by the Federal government -- do we really intend to make the best use of our available freshwater supply; are we going to consider ecological changes in approving public works programs; are we finally going to stop the flow of all of our streams and rivers so that no fresh water reaches the sea; et cetera?

On the other hand, any objective assessment of the estuarine problem must indicate that the primary effects of any damage to these areas is essentially a local matter, particularly as far as shellfish are concerned and, indeed for other species as well.

It must also indicate that every coastal state interested in fisheries has an outstanding organization, such as the Alabama Water Improvement Commission, the Alabama Department of Conservation, the Florida Fish and Game Commission, et cetera, which has already developed a wealth of ecological information in its effort to cope with the problem and to preserve and enhance the fisheries in its own area. These organizations frequently utilize the resources of the well-recognized marine science departments of their universities.

The resource programs conducted by these agencies and organizations are of the highest caliber, but unfortunately, most of the projects are limited in scope and local in nature because of the limited funds available for such work. This most excellent research apparatus could supply the ecological information needed for a comprehensive program in a reasonable period of time if it was properly assisted, coordinated, and funded.

It is respectfully suggested that the role of the Federal government is to supply these agencies with sufficient assistance, coordination, and funding to develop all the information required for a successful estuarine program.

The management of each individual estuary or estuarine area must, however, rest with the state or states involved, because they and they only can determine what is best for the welfare of their own citizens. Thank you.

MR. THOMAN: Thank you very much.

I would next like to call on Mr. Edward W. Castellani, representing the South Alabama Regional Planning Commission. Mr. Castellani.

MR. DON PRUITT: Unfortunately, Mr. Castellani wasn't able to be here this afternoon, and the testimony I'm about to read happens to be the position of the South Alabama Regional Planning Commission with regard to the issue we are discussing today.

> "In reviewing Volumes I through III, Proceedings of Public Hearings on Water Quality Standards, Mobile and Escatawpa River Basins, Mobile, Alabama, January 19, 1967, there is no doubt that people of the Mobile and Baldwin Counties, Alabama, want to have clean water.
>
> "During the course of the public hearing, testimony presented indicated an unwillingness to sacrifice environmental preservation of the area's estuaries, companion aquatic animals, plant and marine life. In fact, based on the transcript, it is apparent that considerable numbers of individuals and

organizations recognize through observation, experience and with varying levels of technical knowledge, that environmental deterioration of our estuaries is much in evidence.

"Concurrent with this phenomenon, they have come to realize that contamination of our tributaries and estuaries is an unwanted and unnecessary consequence of a highly technical society. And yet, the delay encountered in identifying the socio-economic impact that water pollution has on a particular area has allowed patterns of industry and society to become set in enormous investments.

"As a consequence, alterations in our living habits, changes in our industrial operations, and new scientific approaches to abatement programs, and technological advances in methods of disposing of waste now appear to be mandatory. It is only hoped that the catch-up effort will be implemented as soon as possible, with appropriate attention focused on a fair, equitable program affecting all concerned.

"The South Alabama Regional Planning Commission, by enabling legislation, is charged with the responsibility of planning for the social, economic, and physical development of Baldwin, Escambia, and Mobile Counties. As such, the Commission is vitally interested in the causes and effects of water pollution.

"Among the specific disciplines or areas of concern with respect to this feature are:

1. Protection of the health of the area's citizens.
2. Protection of the area's tributaries to ensure a safe, healthful water supply for domestic and industrial use.
3. Protection and preservation of the area's water bodies which are currently being used for, or have the potential of being developed for, recreation.
4. Preservation, protection, and enhancement of fish and wildlife.
5. Salinity and sediment control.
6. Pollution abatement controls.

"With respect to the above-mentioned, they can be considered to be the goals and objectives of the Commission in dealing with matters related to the region's water bodies.

"Action to decrease pollution is recognized by the Commission as being a continuing scientific process requiring the support and understanding of all concerned. Thus, the Commission is of the consensus that the proposed National Estuarine Pollution Study, authorized by the Clean Water Restoration Act of 1966, will be of considerable benefit to the region in that it is designed to identify water pollution problems peculiar to this area's estuaries and recommends measures to resolve at least some of the existing and emerging pollution problems.

"Accordingly, the Commission is desirous of having placed in the record of this public hearing its endorsement of the proposed study. From the description in the invitation, we understood that the testimony given here today should not be repetitious of past hearings but suggestions on the format, scope, and emphasis of the study. We will direct our comments to these points.

"The Commission does, therefore, offer for the study commission's consideration recommendations as follows:

1. The study give special attention to recommending the formation of an effective organization at the regional level, comprised of public officials, industrial and conservation interests, so as to realize better effectuation of water pollution control programs.

2. While pollution control is everybody's business, the report should emphasize that local government must assume leadership in the area of establishing proper controls and ensuring their implementation and enforcement.

3. That a close but general investigation be made of the cost of implementing an effective pollution abatement program without unduly increasing the local tax burden or placing an unnecessary financial hardship on industry.

4. The various organizations concerned with water pollution problems be apprised of the progress of the National Estuarine Pollution Study.

"In conclusion, it is clear from the testimony presented at the public hearings conducted in Bay Minette, January 18, 1967, and at Mobile, January 19, 1967, that there is an urgent need to improve the conditions evidenced in the region's estuaries. Moreover, where contamination cannot be completely eliminated, precise measures need to be taken to at least provide a partial solution to the water pollution problem.

"In summary, we believe the major emphasis of the study should be on effective identification of the total problem and its solution through a more in-depth study at the regional level than this study will afford. The Regional Planning Commission has scheduled a comprehensive water and air pollution study for the fiscal years 1969-70. We are in the preliminary stages of formulating a proper approach to this study.

"I believe that the South Alabama Regional Planning Commission offers a unique local opportunity to bring a comprehensive, coordinated, and unbiased view to this subject."

Thank you, sir.

MR. THOMAN: Thank you very much, Mr. Pruitt. And I hope you will express my appreciation to Mr. Castellani for being here this morning. Also, express my regrets that I wasn't able to get to him this morning.

MR. PRUITT: Thank you very much.

MR. THOMAN: Does anyone have any questions? If not, I would like to call on Mr. William Sizemore, representing the Alabama Forest Products Association. Mr. Sizemore.

MR. WILLIAM R. SIZEMORE: Mr. Chairman, ladies and gentlemen, my name is William R. Sizemore. I am President of the Alabama Forest Products Association. Our Association represents a large group of industries and individuals, all of whom have a deep interest in all natural resources, but particularly in the complex that is called forest land.

Our Association is presenting only a brief oral statement and would like to take advantage of the privilege of submitting an expanded or revised statement within the 15 days that the proceedings of this meeting are to be kept open.

Thousands of southern Alabama workers make their livelihood either directly or indirectly from our forests. These workers, the employees of industries using forest-produced raw materials, and these industries themselves have a vital stake in any program which proposes to change the economics of their production process.

The members of our Association use chemicals in the management of their forest lands and in their manufacturing processes. Fibers and sewage are often by-products. Vegetation may be altered and transported and erosion influenced by forest harvesting. Any of these activities may be potential contributors of estuary pollution.

Our industry would look with favor on a program to clean up our estuaries as long as the following are considered:

1. Cost-benefit calculations must include not only governmental expenditures but industry compliance costs and any reduction of wage-earner or industry income as a result of restrictions.

2. Recommended pollution controls must be economically feasible. If not, industry should not have to bear the cost of the research necessary to make them economically feasible.

3. Forest and forest industry activities are inherently long-range in nature. Steps to control estuary pollution must also be long-range in nature so that plans can be revised in an orderly manner.

Thank you, Mr. Chairman.

MR. THOMAN: Thank you very much, Mr. Sizemore. We look forward to receiving your more extensive statement. Are there any questions? Thank you, sir.

Next I would like to call on Guy Babin of the International Paper Company. Mr. Babin.

MR. GUY J. BABIN: Mr. Chairman, members of the panel, ladies, and gentlemen, I am Guy Babin, Manager of the Mobile Mill which is a part of the Southern Kraft Division of International Paper Company. I am a graduate chemical engineer, a registered professional engineer in the State of Louisiana, and a member of the Technical Association of the Pulp and Paper Industry.

Mr. E. E. Ellis, Vice President of International Paper Company and General Manager of the Southern Kraft Division, presented a statement at the hearing conducted in Mobile by the Alabama Water Improvement Commission on January 19, 1967. Inasmuch as the statement of Mr. Ellis will become a part of the record of this hearing, I would like to point out some of the economic changes which have occurred in the almost two years since the previous hearing, and give certain supplemental information relative to the Mobile Mill.

The International Paper Company complex at Mobile, consisting of the Mobile Mill, the Southern Kraft Division offices, Gulf Woodlands regional offices, the Bag and Bag Pak Converting plants, and Division research facilities, employ approximately 3,750 people. This employment represents an annual payroll in excess of $28½ million.

In addition, our Mobile operation uses some 635,000 cords of wood supplied from the surrounding area, providing an income of $14½ million to the hundreds of small suppliers and those engaged in the production of pulpwood. Other supplies and services call for an expenditure of $15½ million, and our outbound freight bill is almost $4½ million annually.

Taxes other than income taxes, licenses, and fees paid to the city, county, and state on these operations were in excess of $1,030,000 in 1968.

In our statement of January 19, 1967, we pointed out that the total process water use at the Mobile plant is 32 million gallons per day, 30 million gallons being obtained from Big Creek Reservoir and the remaining two million from company-owned shallow wells. We also pointed out that we were not able to use Mobile River water in the immediate vicinity of the mill as a source of process water because of its high salt content.

On August 1, 1968, we changed a portion of our water supply and presently obtain 25 million gallons per day from the Mobile River which is taken at a point some 20 miles above the mill. Eight million gallons per day are still obtained from Big Creek Reservoir. These 33 million gallons of water per day are purchased from the Water Works Board of the City of Mobile. Company-owned shallow wells continue to supply two million gallons per day.

After intensive study, we put into operation in May of this year a system to dispose of the sludge from our primary clarifier. This system substantially reduces the need of impounding the sludge, thereby eliminating the subsequent leaching of waste fluids into the surrounding waters. This installation cost approximately $300,000.

In addition to the primary waste treatment system, we have under development a plan and time schedule for secondary, or equivalent, waste treatment in the Mobile Mill. This plan and time schedule was developed after consultation with, and has been submitted to, the Alabama Water Improvement Commission.

During the past summer, we retained a full-time consultant. He and a staff of mill engineers made detailed in-plant studies to locate sources of waste and analyze them in order to develop in-plant process changes which would reduce the amount of losses occurring.

As a part of our continuing efforts to improve water and air conditions, we recently employed a sanitary engineer with a Master of Science degree in Sanitary Engineering to devote full time to our environmental conservation program.

It is our considered opinion that the promulgation of regulations establishing standards and criteria in the estuarine waters of Mobile Bay and Mobile River properly have been placed and should remain under the jurisdiction of the State of Alabama and the Alabama Water Improvement Commission.

For many years, International Paper Company has been a strong advocate of the multiple-use philosophy for land and water resources. Under our timberlands management, this type of program is in effect at numerous reservoirs and woodland areas and is available for use by hunters and fishermen. We urge and feel sure the Federal Water Pollution Control Administration, after concluding this study, will recommend this same multiple-use approach to the problems relating to estuarine waters.

We appreciate this opportunity to appear and present our views and assure you of our continued cooperation in this very important area of common interest. Thank you.

MR. THOMAN: Thank you very much, Mr. Babin. Are there any questions?

Next, I would like to call on Mr. Gerard W. Sweet, representing Gulf Shores Seafood, Gulf Shores, Alabama.

MR. GERARD W. SWEET: My name is Gerard W. Sweet. I am the plant owner of the Gulf Shores Seafood Company in Gulf Shores, Alabama. I represent my own company, the commercial fishermen that have to work for a living, and also Alabama Fisheries.

I meet quite a few people from all over the Country that like Gulf Shores. There's one particular man that has fished in every part of the world, and he has ended up living in Gulf Shores. He likes it because of the clean water.

I know of other fellows who wrote in 1935 a booklet, and I have it here. It's entitled "The Fight for the Water Hole." It's got a cartoon on the front. Some things have changed, but most of them are still as they were. I would like the cartoon that he has on the front to go into the record. This is in 1935. I will give you a copy.

MR. THOMAN: Do you have a copy you can give us? We certainly will reproduce it into the record.

MR. SWEET: I don't have the full booklet; I can read what it says at the front of it.

MR. THOMAN: In fact, we may have to ask you sometime in the future to lend us the original so that we can get a better reproduction.

MR. SWEET: Well, I don't want to leave it.

MR. THOMAN: Well, we can understand that.

MR. SWEET: As you can see, they only had the Izaak Walton League in those days. Now we have a few more people, but it's the same thing -- domestic sewage, industrial waste, drought. That hole in the middle looks like Mobile Bay, with our water needs.

The State Department of Health has been shot through with politics. (Laughter) U. S. Public Health Service -- they know what the problem is, but they don't have the money to do anything about it.

This man also in the back has a little booklet that says, "How much do streams cost?" It was originally published, I think, in 1938 in "Outdoor America," the official publication of the Izaak Walton League of America. It was reprinted by the Portland Cement Association, and it says, "How much do clean streams cost?" And it goes on to tell about treatment plants and what they cost. In the last sentence it says, "A sewage treatment plant is a community insurance policy giving you protection against disease and death at a cost, approximately, of one cent per day. Is it worth it?" I wish we could get it for that amount now.

I'm a Yankee. I come from Glastonbury, Connecticut. I had a stream next to our house that I used to fish in. They told me it was a great stream for speckled trout. We used to fish in it. The only thing that would come down it, though, was old suckers and eels. It was something you could see. It wasn't the kind of pollution we have today. Well, you can see it when you have a fish-kill, but there it was in color. They came down the stream red and blue, and you could dig them out and pile them up to your knees.

I just got a booklet from my hometown. They're looking for industry now. It says -- well, out of 13 pictures of the town, it's got six of them of the water that's there. And in this particular creek that I spoke of, they're spending a quarter of a million dollars to make it into a park so they can walk in it and use it again.

I know what pollution is. I hear it from the fishermen every day. I have got a few things that they have told me. They said that their nets will sink three to four feet in red-black oozing waste. Nylon thread will be coated and come out as big as a pencil.

We have to stop industry from dumping waste. Some of my fishermen were out for two days trying to make a living, and they didn't catch not the first fish or see the first fish jump in one of our bays. One of our bays you have a tar plant on one side -- on Black Warrior River. This used to be a good fishing spot; now they all taste like tar. Any fish that is caught around there tastes like tar.

On the other side you have St. Regis Paper Company that is putting sludge down there by the bridge. There's just not any fish at all there. Last year one of my fishermen said he saw sea gulls over the bay out there and figured it was a good place to set for fish. He set his nets, and it was shallow enough where he could see the bottom. He said he saw just piled up flounders, sting rays, croakers; and he got some of them up, and he said their stomachs were bloated but the fish were firm, like they had just died, and there was a green oozing stuff coming out of their gills.

The quality of the seafood of Alabama -- the lowest food we have got is mullet -- is at least five cents cheaper on the market than Florida fish or Carolina fish, because they have got firmer fish.

We have a fish, a mullet, that our fishermen call water-belly mullet. They shake like jelly in the belly. If I fillet one to see what one looks like, the rib bones stick out from the fish into the stomach. They aren't attached to the stomach wall.

When the fishermen catch them, this green oozing matter comes out and covers the bottom of the boat, and it stinks. If you get it onto the meat of the fish you can't rub it off. It's hard to wash off. They're only good for crab bait, and what can you pay for crab bait -- three cents a pound? You have got to pay the fishermen a cent. At the most, they won't keep two days, and this stuff will eat through the intestines into the stomach wall. You have to do something with them in a hurry.

The solutions to the problem, or what the fishermen -- they think they are too small to get anything done. They are afraid to voice their opinions for fear of what might happen to them.

There's one other thing. There is a private industry who is dredging oysters. They have made a test; they made a test to see how deep the oysters were in the reefs -- live reefs. They said the test boat would be out there on the reef. And these fishermen would go to try to see what happened, and the boat would move off -- move out to the middle of the bay. When the fishermen had to go back about their business, then they would come back to the reef. The question they asked is, "Why wouldn't they let us see what they were doing?"

There used to be 30 or 40 oyster men making a living off these lower reefs, and now there are only two or three. I know of a man that found live oysters in front of his oyster dredge that is out there right now, and they threatened -- they told him he was going to have to lose his job if he said anything about it.

The solution to these problems would be to stop the polluters from dumping untreated waste spoils into our estuaries, which in turn results in the depletion of marine life. The only classification we can have on our waters is for recreation; if it's good enough to swim in, then it's good enough for everything else.

Another recommendation would be to stop the pressure and money from being put on state conservationists, on the biologists, and on health people by big industry so that they will say the things that industry wants. We need to have the things said that people want.

The Water Improvement Commission should have as many seafood people on the Commission as there are people representing industry. We have to use the water after industry gets through with it. The water should be administered by the people and not by the polluters only.

The main point of this is when the fishermen can't fish, then everyone else will not have any clean water either. Then your industry and your country is finished.

MR. THOMAN: Thank you very much, Mr. Sweet. Are there any questions?

Dr. Ibert, do you wish to make a statement?

DR. EDWARD IBERT: Yes, I would.

MR. THOMAN: I would next like to call on Dr. Edward Ibert.

DR. IBERT: Thank you, Mr. Chairman. Ladies and gentlemen, I requested a few minutes of your time to say a few things which entered my mind as I heard the presentations today. I intend to submit a more detailed report within the time allotted.

In many areas, the problem of pollution in the estuaries is really the sum of circulation restrictions, natural or man-made, compounding the problem of waste elimination. You can't have one without the other.

First, I would like to say, I am not a disinterested observer here. Until September I was a professor of oceanography at Texas A & M University. We have an active research program in oceanography.

Progress in research has been defined as replacement of the enormous mistakes by smaller mistakes. This is from Gunnar Deitrich. He also said, "You can always tell the instructor from the student. The instructor has his ignorance better organized." Both of these remarks are pertinent to the problem at hand. We have had presentations today which fall obviously into one or the other category.

First, Mr. McCellan's comment on funding of research -- the deliberate compartmentalization of academic and Federal funding -- research programs to produce academic experts who are experts in their own area of specialization to such an extent they can hardly talk intelligently to scientists in other disciplines. We need people who can take an overview of a problem or a problem area. These people require funds to use to guide others and to use contributions from other disciplines in an orderly manner to elucidate the entire problem.

I firmly believe that if it were not for hurricanes, river floods, and so forth, we would long ago have lost our estuaries as productive basins. The Galveston Bay now contains several million acre feet of saprophitic materials. This material is choking the lagoons and inlets. The next hurricane will produce storm tides in the Bay which will act just as pulling a flush lever acts in a more familiar surrounding to clean this material out.

Progress in man's economic and political growth is not necessarily like progress in research, as defined earlier. But in many instances, many of these smaller problems are replaced with enormous problems.

I will submit a more detailed paper within the time allotted.

MR. THOMAN: Thank you very much, Dr. Ibert. Does any member of the panel have any questions?

I do not have any more cards of anyone else who wishes to speak. Is there anyone in the audience who has not been heard who wishes to be heard at this time?

Again, we will mention that the record will be open for 15 days for anyone who wishes to submit a written paper within the 15 days allotted. So, if you submit the paper within 15 days, it will be incorporated as part of the hearing transcript.

Each of you will receive a copy of the transcript as soon as it is printed.

(Whereupon discussion was held off the record.)

MR. THOMAN: You probably will be receiving a copy of the proceedings within six weeks.

Again, on behalf of myself and the members of the panel, I want to express our appreciation to each of you for being here today and participating in what I hope has been a very fruitful meeting. Thank you very much.

(Whereupon the meeting adjourned at 2:30 o'clock p.m.)

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Mobile Area Chamber of Commerce
    Forrest Little, President
    W. H. Holland, New Industry Committee
    Dr. James V. Walters, Environmental Engineering Consultant

Alabama State Chamber of Commerce
    James J. Britton, Executive Vice President

Alabama Wildlife Federation
    Benjman H. Kilborn, Vice-Chairman, Pollution Committee

Three Mile Creek Association
    Colonel George B. Inge, Chairman

Senator Lister Hill
    United States Senate

University of Alabama, Natural Resources Center
    David M. Grubbs, Director

Auburn University, Water Resources Research Institute
    James C. Warman, Director

Southern Industries Corporation
    Lt. General Walter K. Wilson, Jr., U. S. Army Retired, Vice President

Alabama Rural Electric Association
    James A. Vann, Jr., President

Alabama Fisheries Association
    J. S. Ramos, President

Alabama Department of Conservation
    William F. Anderson, Chief Seafoods Division

North Alabama Conservation League
    Robert F. Shanks, President

Oceanonics, Inc., Houston, Texas
    Edward R. Ibert, Chief Scientist

Alabama Federation of Women's Clubs
    Mrs. C. O. Christianson, State Division Chairman Clean Environment

League of Women Voters of Mobile
    Verda Horne (Mrs. Thomas R. Horne) Chairman of Water Resources Concern

Montrose, Alabama Garden Club
    Mrs. Bruce Filippini, President

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Daniel Payne Hale, Ph.D.
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B. I. Reynolds, Captain USCG Retired

WILDLIFE AND BIOLOGICAL BENEFITS OF PROPOSED THEODORE CHANNEL

BY

DR. M. WILSON GAILLARD, PRESIDENT

MOBILE COUNTY WILDLIFE AND CONSERVATION ASSOCIATION

October 18, 1968 Edition

Enclosures Attached:

Auburn University letter dated October 9,1968 to Dr. Gaillard.

Stewart L.Udall, Secretary of the Interior, letter dated September 13,1968 covering Dr. M.Wilson Gaillard's contribution to Wildlife and Conservation.

CBS Products Company quotation to Dr. M.Wilson Gaillard dated October 9,1968.

Ernest Construction Company quotation dated October 1,1968 covering oyster shell map for standard perimeters.

May I, as a life long citizen of Mobile and one who has for the past 40 years sought ways to protect our great outdoor heritage, express a few personal views in regard to a proposed ship channel into the new Theodore industrial complex? I ask this privilege because it appears this much needed project has run into difficulty due to a mistaken belief it may have adverse wildlife effects.

Mobile--Alabama's only seaport--is one of the principal harbors of this nation. Because of its favorable geographic location, it is destined to become even more important as a gateway to developing Latin American countries as well as for National defense. But Mobile cannot reach its national economic or defensive potential without the proposed deep water channel into the new Theodore industrial complex.

Reports from the Alabama State Docks reveal the fact its bulk handling facilities are presently operating at full capacity, thus making it impossible to handle this port's ever-growing bulk tonnage increases.

Foreseeing the urgent needs of additional dock space, an ideal tract of prime public industrial land, large enough to meet foreseeable future growth, has been secured. It has already attracted new industry totaling millions of dollars.

Many other huge companies are negotiating for plant sites, awaiting only the assurance of a 40' x 400' deep channel into the Theodore area from the present ship channel 5-1/2 miles eastward.

BENEFIT-COST JUSTIFICATION

A survey report is being made by the U. S. Corps of Engineers to determine the advisability and economic justification for Federal participation in providing the desired ship channel.

The Alabama State Docks Director has furnished shipping data to support the need for the new channel construction.

Shipping companies, serving this port, recognize the need for this proposed channel and wholeheartedly recommend its construction.

Railroads, banks and businessmen see its need and urge its construction. From every financial consideration the proposed Theodore Ship Channel is thoroughly justified. The only objection advanced was the possible undesirable effects such a deep channel might have on Mobile's important Estuary and upon Wildlife, chiefly marine life. There is ample biological proof to dispel this objection.

MOBILE ESTUARY AND WILDLIFE

Estuaries are national assets and Mobile's estuary is one of the nation's best. We intend to keep it so. The Mobile County Wildlife and Conservation Association, with its 1800 members, have for 25 years steadfastly opposed all moves detrimental to our water resources and, as their president, I would most certainly not sanction this proposed Theodore Channel if it endangered our great estuary asset.

Through years of observations and personal research in wildlife conservation, it is my considered opinion there are ways to make the proposed Theodore Channel a tremendous wildlife asset as well as meeting an industrial need. But the key to making it an environmental asset rather than a factor of destruction rests on two steps: First, the method of spoil disposal and secondly, a strict enforcement of anti-pollution laws upon local industry and shipping interests using these facilities.

In regard to spoil disposal, we have secured expert engineering advice which indicates the following recommendations are not only practical, they are economically beneficial. They are equally as sound biologically.

We believe any conservation group, yacht clubs, Audubon groups, nearby property owners and all local fishermen will support the proposed channel if the following proposals are incorporated in the program:

1) There should be no encroachment into Mobile Bay. Its

present natural shore line must be zealously maintained.

2) We advocate that not one cubic yard of foreign material be dumped into Mobile Bay. We saw San Francisco Bay reduced in size by bulldozing rocks, old automobiles, city garbage and the like so that new shorelines would jut out into their estuary. Their shortsighted development has seriously reduced the total cubic yards of water in San Francisco Bay thereby reducing its value as a vital estuary.
3) Proper dredging and spoil disposal will not add foreign materials--it simply alters the depth of Mobile Bay by transferring cubic yards of natural bottom soil from one spot over onto another spot.
4) The end result of dredging and proper placement of spoil can be made tremendously beneficial to fish and marine life because it will create water depths best suited for spawning areas, conditions not presently found.
5) The proposed Theodore Channel will extend across 5-1/2 miles of Mobile Bay which area is presently too deep for spawning or for small-fry to survive in, yet it is too shallow for favored migration route of many fish or schools of shrimp.
6) By scientifically depositing the 19,300,000 cubic yards of spoil which the new channel and new ship anchorage will involve, we can create several spoil islands, each surrounded by ideal shoal water, thereby offering new breeding acreage for all types of seafood.
7) Even though these several man-made islands will slightly diminish the water surface area of Mobile Bay, it will actually greatly increase the total cubic yards of bay water due to the greater channel depth.
8) We emphasize the important fact that it is the water volume which furnishes a habitat for microscopic marine life and it is this microscopic marine life that forms a chain of

food essential to all earthly life, including human life!

9) The proposed Theodore Channel will not only greatly increase the total cubic yards of water volume--with its essential microscopic chain of food--it will actually make this basic microscopic food more available to more different species by a unique control of varying water depths.

10) The key to this new concept of estuary improvement is based on the creation of stable spoil islands and a precise control of water depths around these islands. It is a concept which makes use of age old laws of nature, but it applies these natural laws in more harmonious combinations and sequences to produce more ideal results. It is analogous to combining ordinary musical notes in such sequence, that the result is beautiful harmony rather than discordant confusion.

DREDGING STATISTICS

Mobile Bay portion of the proposed Theodore Ship Channel would start from the west shore of Mobile Bay at the old Army Ammunition Depot Channel and extend south-eastward 5-1/2 miles to connect with the present Mobile ship channel. It would be 40' + 2' deep, 400' wide at base, with gradual sloping sides. Total spoil will be approximately 19,300,000 cubic yards.

SPOIL DISPOSAL COST

As in all dredging operations, spoil disposal presents the chief problem. There were several alternative proposals for handling the 19,300,000 cubic yards of sandy silt, including the following three:

(A) By depositing the spoil so as to form a peninsula jutting out into the bay from the shore, this peninsula to connect to property owned by private interests.

This proposal would be totally unacceptable to all conservation groups and would be stopped by injunction before the first cubic yard was moved! Besides its many damaging estuary features, it would amount to giving enormously valuable Alabama State land to private individuals. This happened at this very same spot when the original Ammunition Depot channel was dredged. (Gill vs. State of Alabama, 1940)

(B) By pumping the entire 19,300,000 cubic yards of spoil back onto mainland. Available estimates place this cost at approximately $6,000,000 based on an estimated cost of 31c per cubic yard. Such expense would adversely affect the Benefit-Cost Ratio thereby jeopardizing the much needed project. We could not support this plan.

(C) Depositing the spoil no closer than 1,000 feet from the channel and in such manner that several spoil islands would be formed, at least 3 of which would be on south side. (See Dr. Wilson Gaillard's Drawing: Altered 10/18/68). Estimated cost of this procedure is approximately $2,120,000 based on 11-1/2¢ per cubic yard or a saving of approximately $3,800,000, less cost of 45,000 lineal feet of oyster shell mat @ $2.50 per lineal foot. (See attached bid dated October 1, 1968 from Ernest Construction Co.) leaves a net saving of $3,688,000. Therefore, from a cost consideration, Plan "C" is far more desirable, but it could not receive approval until a method of spoil disposal could be devised whereby the spoil could be made into an asset rather than a navigation hazard, a seafood plague and a damaging factor to beach property.

By depositing the 19,300,000 cubic yards of spoil into permanent islands and also making valuable shoals (see drawings), these objectional features would be eliminated. In fact, such islands would be very valuable as recreational spots and by creating pre-determined shoals bordering each island, they would tremendously improve seafood production. Such islands with their built-in features can also be made into a waterfowl paradise. In summers they would serve as nesting sanctuaries for hard-pressed shore birds, especially the endangered species of Brown Pelican.

BIOLOGICAL BENEFITS OF SPOIL ISLANDS

1) The several created spoil islands would lie south of the proposed channel. Their combined periphery would add up to approxi-

mately 45,000 lineal feet of shoreline. Every lineal foot of island shoreline with its shells and marsh grass growth would offer excellent spawning areas for many species of fish and crustaceans.

2) They would be permanently stabilized against wave erosion by an apron of oyster shells and a border of cane and saw grass.

3) Each island would have approximately 500' of shoals built around it, creating valuable new shoals, graduating from zero depth to 5 feet. Such depths are ideal for schools of small fish to mature into harvesting size.

4) These islands shoals would permit a new area for choice aquatic growth for all species of our dwindling waterfowl population to feed upon.

It would doubtless prevent thousands of ducks from crossing the Gulf of Mexico in search of food, only to be slaughtered by hunters not bound by game laws in Central and South American countries.

OTHER BENEFITS OF ISLANDS

There would be many other benefits accruing from these man-made spoil islands. Since each will be developed to serve a specific need, we offer their functions separately.

ISLAND I

The island nearest mainland may be smaller than the other two, depending upon the need for pumping some of the available spoil back onto the mainland. Therefore, we have assumed it will be only 4500' x 1000' wide and perhaps 10' high.

We propose this island be developed at a future date into a public camping or picnic area. Its greatest benefit could be derived by surrounding it in marsh grass as a seafood spawning area. This island would also be a tourist attraction and cost of developing it would be insignificant and development cost would not be part of Feasibility Study.

ISLAND II

The second spoil island should be bordered on 3 sides by cane and marsh grass and with choice duck grass off-shore. On the west side we propose a small boat harbor be created so that pleasure crafts could find a quiet, cool spot for overnight anchorage.

Boat owners are enthusiastic over the idea. Probably a more important use might be its safe harbor for fishing crafts and pleasure boats to run in during the many violent squalls which form very suddenly in the Mobile area.

A small landing pier and shelter huts are recommended.

Development cost could not be included in Feasibility Study and would be paid for by other non-Federal, public or private sources.

ISLAND III

This outermost island can be developed into a terrific wildlife asset. (See accompanying map.)

First, its potential as a unique man-made bird sanctuary can have built-in features to protect nesting sea birds from destructive humans. For example, most islands used by nesting birds are so formed by nature that available nesting sites are on exposed beaches where dogs and children do incredible damage to colonies of shore bird nests. Eggs are so well camouflaged one cannot help but crush them underfoot. Neither can children--and grown-ups--resist picking up eggs as souvenirs.

In addition, when unwelcome humans approach colonies of nesting shorebirds, the parent birds are frightened away. In the intense summer heat bird eggs will addle very quickly if the nesting bird is not allowed to cover her eggs against the blazing sun rays. Thus a family picnic or swimming party often spoils thousands of eggs unknowingly.

This danger to hard-pressed shorebirds will be eliminated by creating a nesting island in the center of Island III and protected by a man-made bay filled with aquatic grass too muddy for most people to wade through.

This is the type of secluded nesting habitat the endangered Brown Pelican requires and because there are none along the north Gulf of Mexico Coast, this fascinating species of birdlife is fast approach-

The large bay within Island III will be connected with Mobile Bay by a tidewater bayou thus permitting fish, crabs, shrimp and oysters to find an ideal spawning area where they can reproduce in countless numbers. Development cost of Island III would not be included in Feasibility Study and would be paid for from other sources.

SUMMARY

This brief description of the wildlife benefits which would result from the proposed Theodore Ship Channel may give laymen and Congressional Committees a clearer understanding of the environmental problems involved. It may also explain why dedicated conservation groups are so anxious to see this new concept of spoil disposal used. It offers a method for industrial growth without wildlife destruction.

It is also biologically sound and therefore I earnestly recommend its approval.

Respectfully submitted,

M W Gaillard

Dr. M. Wilson Gaillard, President

Mobile County Wildlife and
Conservation Association

MWG:ew

February 4, 1966

Hon. Richmond Flowers
Attorney General
State of Alabama
Montgomery, Alabama

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Dear Mr. Flowers:

I am writing you as a taxpayer, lawyer and President of the Mobile County Wildlife and Conservation Association.

It appears to us that immediate State action is required to prevent the destruction of a great natural resource and loss by the State of approximately 1900 acres of bottom land in Polecat Bay in Mobile County, Alabama.

Silt from the dredging in Mobile River is now (and has for some time) being pumped into Polecat Bay, filling it. In 1963, as I understand it, an attempt was made in the Legislature to authorize the Department of Conservation to condemn a small strip of land around the perimeter of Polecat Bay so that dikes could be erected to prevent Polecat Bay being filled in by this dredging operation. This Bill did not pass. Under the decision of State vs. Gill, 66 So.2d 141, the 1900 acres of Polecat Bay when converted to dry land will pass from the State's ownership to the adjoining landowners. It appears to us that an injunction ought to lie on behalf of the State to prevent this de facto taking of the State's land without compensation to the State. Certainly no other assets of the State would be allowed to be squandered in such a way. Bill Sellers, Mobile Press Register Reporter, writing in his column "Capitol Comments" in 1963, pointed out that this 1900 acres as dry land had an estimated value at that time of more than $2,000,000.00.

Since preparations are underway to deposit more silt in this Bay, your immediate attention and action on this matter is urged by our organization. If you are not inclined to proceed immediately by injunction or other remedies to stop this Bay's destruction and loss of a $2,000,000.00 State asset, we would appreciate your

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written advice to this effect. In such event we would feel free to proceed via taxpayer's suit or other remedies.

Your immediate reply would be most sincerely appreciated.

Sincerely,

BENJAMIN H. KILBORN

BHK:sfh

POLE-CAT BAY INTRUSION

Polecat Bay and its associated problem of industrial intrusion is in itself only an indication of a major problem that will sooner or later be affecting the entire Mobile Delta area. This Bay should be used as an indication of developments to come with the increased expansion of the industrial and commercial complex in the vicinity of Mobile. Unfortunately however, this will not be the case. Public and conservation interests may oppose this particular encroachment with enthusiasm and action, but it is very likely possible that no action will be considered that will oppose additional and other future developments of the same type in other areas of the delta. As is always the case in these and similar problems, the public interests will not be aroused to action until it is too late. This is the case with the present Polecat Bay crises.

Polecat Bay is an enclosed area of 1640 acres, located on the western edge of the Mobile Delta, and the largest deltaic bay in the entire delta area. At one time, prior to the construction of the Mobile Causeway, it connected direct into Mobile Bay. It was almost entirely dependent on tidal influence for the currents within it, for no feeder streams of any size connected it with the Mobile River, and therefore did not have an independant source of water beyond that of upper Mobile Bay.

The area is a typical delta formation, slowly emerging from the bottom of the bay in the due course of natural deltaic deposits. Test cores and probes have shown that the present bottom is comprised of around thirty feet of deposited silt, then the blue clay base typical of this area. There are no shell, clay, or other deposits such as gravel or sand that would indicate that the settling of the silt onto this area has not gone uninterrupted for many thousand of years. Eventually the normal deposition will have brought the entire bottom above the level of the Bay, at which time the typical developments of marsh grasses and other semiaquatic plants would have followed in natural ecological succession. Needless to say, the natural filling of this area would have been accomplished at such a relatively slow rate, that our descendents would still have the use of the area as a fishing and hunting area.

The normal course of natural filling has been altered somewhat with the addition of extranious materials from two primary sources. The first source is that of discharge from the dredging operations taking place periodically in the program of maintenance on the Mobile River. The second source and the one of major concern is that of the residue from the discharge pipes of the aluminum complex directly across the Mobile River from Polecat Bay. Continual discharge arriving on this site as a result of the procession of aluminum is continually creating additional seepage and discharge deposits that are filling this Bay at a constant rate. The map shown at the meeting of this Advisory Board will show the creeping progress of both of the encroachments, and this continues both day and night on the part of the aluminum processing.

To understand the problem fully, each discharge should be considered by itself, although in both cases the damage done is physical rather than either chemical or biological.

The discharge from the dredging operations is for the most part pure sand, and as such contains little if any nutrients. During the period of time from one maintenance operation to the next, the material deposited in the Polecat area will start to develop some aquatic and semiaquatic growth. To a slight degree this would tend to furnish nutrients into the perepheral areas of the Bay, but production is so slight that any benefit resulting therefrom can be ignored. The damage done is strictly one of physical filling and the reduction of the water area, both in depth and in area.

Preliminary investigations taking place during only the past week have indicated that the following procedures were followed in the legal and administrative steps which led to this continued enfringement into the Polecat Bay area. In 1962, negotiations between the navigation and commercial interests of Mobile and the State of Alabama, through the Alabama State Docks, as well as the Department of Conservation, were completed. This was brought about with the need of a forty foot channel being recognized. Before the U. S. Engineers would consider the development, they had to be assured of a long-range plan of spoil disposal. As a result of these negotiations, the U. S. Engineers were given a twenty-five year operations permit to deposit spoil in the area of Polecat Bay. This final agreement was signed with the U. S. Engineers, the State Docks Department. Copies of this document are available in the office of the U. S. Engineers, District Headquarters, Mobile, Alabama. The signers of this agreement can be determined by an examination of the same, which was finally placed in effect in 1963. The date of this agreement was around January 30, 1963. At present therefore, the U. S. Engineers are operating under a twenty-five year agreement to continue to place maintenance spoils in this area. The only limitation placed on this program is concerning the deposition of spoils to a technical and arbitrary line which has been designated as a harbor line by the State Docks Department. This harbor line was used for technical purposes, the full extent of which this investigator is unaware. It might be stated however, that this harbor line designation has two features which this investigator, not being in the legal profession, cannot decipher. The need for a harbor line in a body of water only ten inches deep, beyond that of legal purposes, cannot be understood. Secondly, although the spoil is to be deposited only to the harbor line the natural drainage of this material, once the harbor line is reached, will permit this material to extend well beyond this limit and far out into the Bay. While obviously a harbor line on dry land would be of no useful purpose, the next step will be to make another harbor line into the remaining water, and step by step, for the period of the spoilage contract, the sand will continue to reach further and further into the Bay.

The second problem area is that of the aluminum plant and its discharge. Again this discharge, based on preliminary investigations, is creating a physical rather than a chemical or biological problem. Aluminum as such is one of the more inert metals and is generally considered and being relatively safe physiologically. As an example of this, most of the anti-presperants used at this time utilize aluminum compounds of one sort of another. Aluminum compounds are used in the internal treatment for ulcers and therefore cannot be considered as too toxic. The actual problem of this situation lies in the continual encroachment of the discharge material into the Bay area, very much as with the dredge spoilage. Under the laws of accretion, material discharged onto a water margin will build up additional lands which can be claimed by the waterfront land owner as real estate.

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There is no limit to the encroachment that can be done under such circumstances. At present therefore, the interest involved in this discharge can fill up the Bay in front of their property and claim it as their own real estate.

To what extent is this material being dumped and what is it affecting?

Actually it has made a biological desert out of the Polecat Bay area. The material is washing into the Bay at such a rate that no bottom vegetation can survive and the water is physically uninhatitable for fish. Water fowl cannot use the area because of the absence of food plants or cover. For all practical biological purposes, Polecat Bay might as well be given to the parties that are filling it up. It cannot be predicted what would happen if the pumping was stopped as of this date. How long it would take for the deplorable condition of the margins and bottoms of this area to regain any value to animal life would be impossible to anticipate.

To suppose that the filling of Polecat Bay is merely a result of industrial expansion and that conservation interests can exert enough pressure to stop this program is being naive to the fullest. The City of Mobile intends to fill up Polecat Bay. The fact that one particular industry or program is creating this fill is merely a reduction in the cost of the over-all program to utilize this area as dry land and not as a bay or water improvement development. The map shown is a copy of the master plan developed by the city planners some time ago. What is now Polecat Bay is indicated as an airport with concrete runways, complete with the access roads and other developments necessary for such a development. Attention is also called to the causeway development running from the sourthern section of the area into and across the western portion of the Bay, thence back into the mainland.

In the last session of the Legislature, the Department of Conservation [illegible] a bill introduced by three of the Mobile Legislators to stop the Polecat Bay debauchery, but for some reason or another, the bill was killed in Committee. For those interested, it would be noteworthy to follow its Legislative History and find out why. This was one of the only two ways that such intrusion can be stopped. The other, that of control of such areas by the State through its Conservation Department met with a similar fate a few years ago. The sportsmen of the area turned down the opportunity to have such areas placed into wildlife areas that would receive continual protection and deprive industrial and commercial interests of the opportunity to turn the marshland into another area similar to the Jersey marshes.

Mr. George Driver, Chief of the Lands Division for the Department of Conservation, is all too familiar with the legal aspects of this case and I would not suppose to delve into these factors. As Chief of the Division of Seafoods, I have to work in the mud of our bays, bayous and oyster beds. Mr. Driver, by his training and experience is relegated to the wading in the mud of legal and commercial manipulations that are endangering the entire delta.

WATER QUALITY
OF
POLECAT BAY

Alabama Department of Conservation
Division of Seafoods

March 3, 1966

Ex 3

POLECAT BAY POLLUTION SURVEY:

The inspection and survey of Polecat Bay located in the Mobile River Delta, was undertaken and completed upon the request of the Mobile County Wildlife Federation to the Director, Alabama Department of Conservation. The work was done by the staff of the Division of Seafoods and the personnel attached to the Alabama Marine Laboratory, a function of the Division of Seafoods at Dauphin Island, Alabama.

METHOD OF INSPECTION:

The physical examination of the Polecat Bay area was made by George W. Allen, Chief of the Division of Seafoods and James Wesley Davis of the laboratory staff. On February 15, 1966, at the request of Mr. Ben Kilborn, President of the Mobile County Wildlife Federation, a report was submitted to the Advisory Board of the Department of Conservation apprising them of the situation in Polecat Bay. The Advisory Board recommended that this problem be turned over to the Water Control Commission of the State of Alabama, but in the meantime Conservation Department employees should continue their investigations. Mr. Claude Kelley, Director of the Department of Conservation ordered the compilation of all background material and the history of the Polecat Bay area. This material was gathered by the staff of the Game and Fish Division of the Department and the Division of Seafoods was assigned the task of determining the conditions of the waters and bottoms of Polecat Bay at this time. This report forwarded by the Division of Seafoods is a result of the inspection thereof.

During the dates of February 23rd, 24th, 25th, and 28th, an inspection was made in compliance with the above instructions.

The inspecting personnel made their first trip into the area by boat. This was launched from the Causeway and proceeded northward into the Polecat

Bay area. At the middle point of the Bay, indicated on the enclosed map as Station 1-W, a hundred ml of water was collected for analysis at the laboratory. The inspection party proceeded northward until the waters became so shallow as to prohibit further operation of the motors. At this point, shown as the limit of navigation on the enclosed map, the motor was elevated and the party poled their way further into the area. The boat used, drew approximately 3 inches of water, but even so travel across the shallows was extremely difficult. A determination of the limit of navigation was made and is shown on the attached map. Further north and approximately 75 yards from the aluminum spoil deposit area, a sample was taken of the bottom. On the site inspection showed that the bottom was covered with approximately 2 inches of ochre-colored deposits which had washed from the aluminum spoil banks. This sediment extended from the limit of navigation northward to a point upstream from the aluminum spoil area.

Beyond the area of aluminum ore, the recent renewal of channel dredging operations and the discharge of their spoilage into the Bay area, made further travel by boat impossible. The inspection party then poled southward to the limit of navigation, and then returned to the Causeway by boat and motor.

Inspection trips during the dates mentioned were made on foot into the Polecat Bay area and a shore-line inspection of the entire western edge of the Bay was completed. Water samples were taken from the settling basin overflow pipe, which is shown as sample #3 on the enclosed chart and which discharges eastwardly into Polecat Bay. Samples were also taken of drainage wastes from the base of the aluminum area, these are shown as sample #4 and discharge directly into the Mobile River.

An attempt was made to take air photographs of the area, but adverse weather conditions made this impossible.

SAMPLE ANALYSIS:

The samples taken at the aforementioned stations were tested for alkalinity, nitrates, pH, and orthophosphates by John Bell, Marine Biologist of the laboratory staff. This is a standard and accepted procedure and may be considered as reliable within a practical degree. The tests ran as follows:

STATION	pH	ALKALINITY ppm	NITRATE NITROGEN ppm	NITRATE ppm	PHOSPHATE ppm
1-W	8.6	2650	5	22.0	0.6
2-B	8.2	4000	7	30.8	1.25
3	10.2	2500	5	22.0	2.4
4	over 10	2850	4	17.6	6.75

CONSIDERATION OF SAMPLES:

pH (hydrogen-ion content): The pH reading generally indicates the condition of water or any other tested material as to its acidity or alkalinity. Most fish and marine creatures can exist when the pH indicated is between 5.5 and 7.5. Temporary readings as high as 8.5 can be tolerated by fish life but only for extremely short periods. Continued readings above 8.0 constitute a condition which would be intolerable to aquatic life. The readings from all samples taken indicate a minimum pH of 8.5 and a maximum of over 10.5 which was the limit of testing equipment. From this viewpoint therefore, it can be said that due to the pH condition alone, this area cannot or will not support marine life.

Comparative pH in areas outside Polecat Bay, but with similar ecology, indicate a pH range from 6 to 7.8. Obviously there is an environmental factor in Polecat Bay which is absent in others. Comparative analysis of these samples show an increase in pH readings as the samples progress into the aluminum ore discharge area. It may be assumed therefore, that this condition is brought about by the presence of chemicals in the aluminum wastes.

Alkalinity: Alkalinity is the characteristic of materials which enables them to combine with certain acids to form salts. In order that any bottom material be capable of producing normal animal and plant growth of macroscopic and microscopic size, a certain degree of alkalinity is necessary. An excessive amount however, can create a situation similar to the alkali flats of our Western deserts. The same condition and reaction are present on water and marine bottoms. The normal alkalinity found in marsh stations with comparable ecology will average from 60 to 100, with extremes of 1000. The alkalinity found in all stations of Polecat Bay ranged from a minimum of 2500 to 4000. The readings of the tests made on Polecat Bay samples will undoubtedly be lower than the actual alkalinity content. This is due to the inability to completely leach the bottom muds in the testing process used.

Undoubtedly, these high readings of alkalinity bring about an imbalance of available nutrients which would be necessary to promote sub-aqueous plant life and microscopic organisms. Without this growth, the food chain in Polecat Bay is interupted and would therefore be incapable of supporting marine life in any permanent manner.

Nitrate-nitrogen, nitrates and phosphates: These materials are specific in nature and naturally occur in varying amounts in all aquatic environments. It should be noted from the results obtained that their presence in Polecat Bay occurs in extremely high amounts. This is especially so in the case of phosphates, which normally occur in concentrations of less than 1000ths of a milligram per litre and often drops below the limit of detectability.

In Polecat Bay, the content ranged from 0.6 ppm to 6.75 ppm, which is high enough to indicate an unnatural condition or combination of these materials.

CONCLUSIONS:

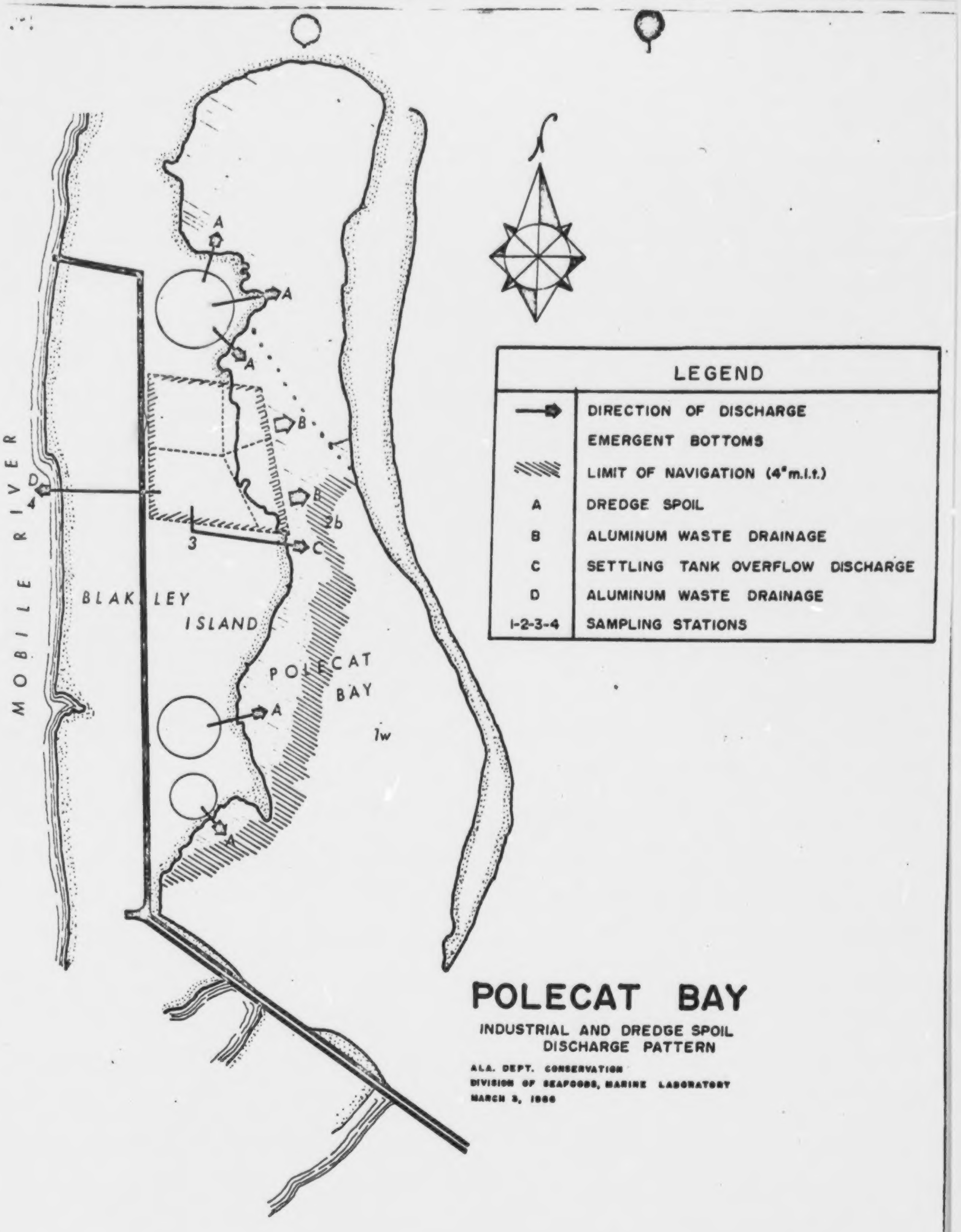
For the purpose of this report, pollution is accepted in its biological and physical term. The legal terminology of pollution in relation to any health, urban development, or any other peculiar circumstance is not considered. Pollution as it is considered in this report, may be defined as the introduction of any material into waters which will adversely effect the condition and quality of those waters. Considering this therefore, it can be unequivocally stated that Polecat Bay is polluted. Its pollution is coming from two sources; the first being the pumping of muds and silts into the Bay in the form of spoils from the channel dredging of Mobile River; the second in the form of silt and chemicals from the disposal of aluminum wastes incurred in the processing of aluminum ore. This ore-waste is being pumped directly from the aluminum plant of the Aluminum Company of America, located on the west bank of the Mobile River.

The question might be asked, how much is Polecat Bay being polluted? The answer would be that it is being polluted out of existance. The volume of chemical discharge entering Polecat Bay from the ore-waste areas is relativly small but steady. The point remains however, that Polecat Bay exhibits the same pollutant characteristics as does the discharge. We may believe therefore, that this entire area has become relatively useless for the production of marine life because of the chemicals entering into the water, regardless of the actual volume involved. A Chinese proverb states that "a thousand mile journey starts with the first step". Obviously, many steps towards the destruction of Polecat Bay have been taken.

The physical destruction of Polecat Bay by the gradual encroachment of dredge spoilage and aluminum waste is physical in nature and can be easily determined by actual observations. It is believed that as of this date approximately two-thirds of Polecat Bay has been effected by silt encroachment from both sources until this two-thirds is of little use in fish production. Unfortunately, the silt from the aluminum company is such that it forms not only a physical barrier but a chemical barrier as well.

To determine the value of the property destroyed by this encroachment, a value of $25 per acre per year from the marine animal production viewpoint is considered as valid by estuarine investigators. The monitary value of the destruction to aquatic and marine life alone in Polecat Bay amounts to $27,450 per year. This situation has existed for at least ten years which would extend the value to $274,500 for this period. Add to this the recreational value of water fowling and the real estate value of the property itself based on a present day appraisal, and the value of Polecat Bay destruction can be determined as of this date.

The legal aspects of marginal infringement, and the loss of this property to the people of the State of Alabama, is outside the technical scope of this report. The personal opinion of the investigator who compiled this report is that the best lesson that can be learned from Polecat Bay is that it will be repeated over and over again as industry and urban developments desire these areas. The filling of Polecat Bay is not accidental. The City of Mobile Planning Commission has already included this area as a downtown airport. This site will no doubt be sold to the City by riparian land holders benefiting under this encroachment for a sizable sum. The moral implications of such a situation are obvious. The technical implications from the viewpoint of conservation is that Polecat Bay is only another step in the journey to destruction and complete alteration of our Mobile Delta Area.


LEGEND
DIRECTION OF DISCHARGE
EMERGENT BOTTOMS
LIMIT OF NAVIGATION (4' m.l.t.)
A DREDGE SPOIL
B ALUMINUM WASTE DRAINAGE
C SETTLING TANK OVERFLOW DISCHARGE
D ALUMINUM WASTE DRAINAGE
1-2-3-4 SAMPLING STATIONS
MOBILE RIVER
BLAKELEY ISLAND
POLECAT BAY
A
A
A
B
B
C
D
A
A
2b
3
4
1w

POLECAT BAY

INDUSTRIAL AND DREDGE SPOIL DISCHARGE PATTERN

ALA. DEPT. CONSERVATION
DIVISION OF SEAFOODS, MARINE LABORATORY
MARCH 3, 1966

THE MOBILE DELTA

General Information
Prepared for the

Technical Section
Mississippi Flyway Council

by

W. Walter Beshears, Jr.
Wildlife Biologist

Mobile, Alabama
March 1-3, 1966

Location

The Mobile Delta is that area in southern Alabama extending from the open Mobile Bay to the union of the Alabama and Tombigbee Rivers which is a distance of about 40 miles in a straight line. It is about 10 miles wide and, unlike a typical delta, is hemmed in on both sides by high land.

Approximately the lower one-quarter is treeless island marshes and bays (the most important portion in regard to waterfowl), while the upper three-quarters is a chain of rivers, bays, bayous and extensive swamp with a thick growth of trees such as black gum, white bay, cypress, red maple, tupelo gum, ash, cottonwood, red bay and willow. Only the lower one-quarter, or treeless portion, will be considered in this report.

Surface Acreage

The lower one-quarter, or treeless marsh portion, of the Mobile Delta which, for the purposes of this report, extends below the Bay Bridge Causeway about three miles to the tip of D'Olive Bay Point, contains a total of about 50,000 acres of which nearly one-half, or about 25,000 acres, is water area.

Vegetative Surveys

The lower Mobile Delta with its shallow bays and accompanying grass-covered marshes has been the subject of a number of short studies dealing with either waterfowl or muskrats. One major study, P-R Project 7-R, Mobile Bay Waterfowl and Muskrat Research, was begun in 1946 and completed in 1949 by Biologist Francis X. Lueth.

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In the summer of 1956, approximately two weeks were spent on inspection of waterfowl habitats on the Mobile Delta and coastal waters and marshes of lower Mobile and Baldwin Counties. During the first week, the inspection tour was headed by Francis M. Uhler and Clark Webster, of the U. S. Fish and Wildlife Service. The second week was spent with William P. Baldwin, Wildlife Management Consultant, who contracted with the Alabama Department of Conservation for the study.

Possible development sites were inspected with both Uhler and Baldwin. However, the more detailed studies were made with Baldwin, who prepared a rather thorough report from the survey, giving his interpretations and recommendations for the area. A number of waterfowl development possibilities were discussed during the inspection tour, and Baldwin enlarged on these and others in his report. He suggested two methods of improving the Delta which are (1) plant introduction and (2) diking. He suggested Asiatic Dayflower (*Analeima keisak*), Delta Duck Potato (*Sagittaria platyphylla*), and Banana Waterlily (*Nymphaea mexicana*) be introduced along sheltered shorelines where there is temporary reduction in plant competition. He also suggested diking on some of the highest marsh which should be entered into as an experimental project. He stated that with so much natural food available in the bays (12,500 acres estimated of high quality duck foods) it would be difficult to evaluate the need and justify the expense of sustained impoundment management by diking.

It is interesting to note that Uhler also recommended plant introduction of the above three species plus square stem spikerush (*Eleocharis quadrangulata*). He also did not recommend diking due to the low, level topography, soft, peaty soil, amount of silt being deposited continually, tidal action, hurricane threats, and continuous ecological changes going on in the bays and marshes.

Both Uhler and Baldwin expressed surprise and seemed amazed at the amount of food present in the bays and marshes. Reports Baldwin: "The total is approximately *twelve and a half thousand* acres of submerged aquatics! We wonder if the local hunters appreciate the richness and value of this flora for waterfowl, and that no aquatic stand compares with it on the Atlantic Coast south of Currituck and Back Bays, in North Carolina and Virginia. The bulk of this flora is of great value as waterfowl food."

Summer surveys have been continued annually on the Mobile Delta by the writer since the Uhler and Baldwin inspections. They are made with particular emphasis on those plants which furnish food for waterfowl and those undesirable species which compete with desirable species, to determine the major plants and plant associations, and to compare results for possible trends and ecological changes.

In 1964, photographs were taken of certain plants and plant associations. Some difficulty was experienced in locating the exact area previously photographed; therefore, it was decided to erect stationary numbered signs from which additional photographs will be taken in succeeding years for comparative purposes. It had become apparent to the writer that continuous (and sometimes phenomenal) changes occur from year to year in species dominance and in location of various species of plants in the Delta area. The photographic studies were begun to obtain a permanent yearly record of these changes.

Submerged Plants

Of the 12,500 acres of submerged plants in the lower Delta area, the bulk of these each year (except 1961 at which time about 60 percent of the bays were covered with water stargrass (Heteranthera dubia) are favorable waterfowl foods. It was found to occupy about 40 percent of the area in 1965, and was present in all of the major bays. The greatest increase in this pest plant was in Bay Minette Basin, where it apparently had replaced the equally obnoxious ribbonleaf pondweed (Potomogeton robbinsii).

There was found to be some decrease in bushy pondweed (Naias guadalupensis) in 1965. In spite of the decrease, however, it continued to be the most abundant duck food in the Delta Area. Wild celery (*Vallisneria spiralis*) was still the second most abundant duck food in quantity. The muskgrasses (*Nitella sp.*) showed a phenomenal increase in occurrence and abundance, and were close behind wild celery in third place. They were found in all the major bays except Polecat. Gray duck moss (*Potamogeton pusillus*) which usually has occupied third place in abundance, was classed in fourth place. Rounding out the "Big Five" was claspingleaf pondweed (*Potamogeton perfoliatus*). There was some increase in occurrence of horned pondweed (*Zannichellia palustris*), which used to be in the "Big Five." However, it remained relatively scarce in the Delta this year.

By July of each year, at which time the surveys are made, the submerged plants occur in thick mats from a few inches up to three feet in thickness on most of the bay bottoms. Various limiting factors curtails growth in some areas in some years. In Grand Bay, for example, only in about one year out of five is there an abundant growth of submerged plants. The deep, wide entrance allows a great deal of wave action which increases turbidity, and there is quicker and more violent tidal action and salinity changes. In 1965, not more than 50 acres of the 2,000-acre bay contained aquatics and these were mainly in the northeast end and around the north edge.

Polecat Bay obviously continues down the road to total destruction as the dredged material from Mobile River settles throughout the area. The band of emergent vegetation of three-square bulrush (*Scirpus americanus*), bull-tongue (*Sagittaria latifolia*), and wide-leaf duck potato (*Sagittaria falcata*) growing along the spoil bar covered a much larger area in 1965. The spoil bar of dredged material extends completely across this area and separates the upper one-third from the lower portion. No submerged plants, not even spikerush (*Eleocharis sp.*), were found in the north end of Polecat above the spoil bar. The entire area in the shallow north end was covered with a thick mat of filamentous algae. The south end of Polecat, below the spoil bar, also contained no submerged aquatics. The dredged material, plus the dumping and settling of polluted wastes from the aluminum ore plant (Alcoa) along the western side of the bay, continues to fill in this bay which used to be one of the best waterfowl hunting areas in the entire Delta.

Emergent Plants

There are two types, or zones, of plants included in this catagory. The lower zone is the area which varies in elevation from a few inches below mean low tide to about a foot above where the vegetation is subjected to a great amount of tidal fluctuation almost daily. It was in this zone where most of the Nutria "eat-outs" occurred a few years ago. No new eat-outs of large proportion have occurred during the past two or three years, however, although several such areas have become enlarged.

The principal plants of the lower emergent zone, and originally in the nutria "eat-out" areas, are cattail (*Typha latifolia*), cutgrass (*Zizaniopsis miliacea*), Southern bulrush (*Scirpus californicus*), three-square rush, etc. These plants were immediately replaced in the nutria eat-out areas by alligatorweed (*Alternanthera philoxeroides*) with some bull-tongue and wide-leaf duck potato for the first two or three years. The dominance was then reversed, and for the next year or so there was considerably more bull-tongue and duck potato than alligatorweed. It was noted in 1964 that the alligatorweed was beginning to come back, and it has continued to increase until it is again the dominant plant in the eat-out areas. The original species of cattail, cutgrass, etc.,are now coming back into these areas in slightly greater quantity.

There appeared to be an increase in wild cowpea (*Vigna sp.*) throughout both zones of the emergent marsh in 1965. This short-podded pea (about four inches) usually is found in fairly thick, matted climbing vines on most of the other emergent plants. Wild rice (*Zizania aquatica*) continued to be scarce in all areas, with only a few scattered plants observed in areas where it was abundant about four years ago. Slight changes in salinity greatly affects this species. There also was a continued scarcity of wild millet (*Echinochloa walteri*) throughout the emergent marsh.

In the higher zone of emergent marsh the vegetation dominance usually undergoes less change from year to year. There was an increase in wild cowpeas and in common cane (*Phragmites communis*). Cane, cutgrass, cattail, maidencane (*Panicum hemitomon*), torpedograss (*Panicum repens*), and scattered plants of many other species make up the higher marsh vegetation. The wild cowpea vines attach to these plants throughout the marsh. Throughout most of the higher marsh, and in all of the lower marsh, the obnoxious understory alligatorweed is found and was present in greater abundance in 1965.

Floating Plants

The most important of the floating plants in the Delta area is the obnoxious water hyacinth (*Eichhornia crassipes*). There was a significant increase in occurrence in this species in 1965. Several beds 25-30 feet wide were found along the edges of Raft River and in some of the tributary embayments in the northern end of the Delta. There apparently had been little or no control work done on this pest plant by the U. S. Corps of Engineers during the past year. Water hyacinth was very abundant in the upper one-half of the Lower Delta in 1960, at which time it was ranked second only to alligatorweed in the undesirable catagory. Environmental factors such as low tides and severe freezes, plus spraying, probably was responsible for a decrease in this species until not a single sprig of hyacinth was found in the entire area in 1964. A relatively mild winter and discontinuance of control measures have allowed this plant to increase, and if favorable conditions for its growth continue it will again choke out a large acreage of the narrow bays in the upper Delta.

Other floating plants, notably American lotus (*Nelumbo lutea*), usually are found in about the same areas each year. Lotus remains the dominant plant on several acres in Bay Minette Basin, Little Batteau Bay, and along the edges of the Tensaw River. None of the floating, or pad plants, except the hyacinth, have ever been of much importance in the Delta Area.

Salinity Range

The waters of the lower Mobile Delta fluctuate seasonally in salt content. They are almost, if not entirely, fresh in late winter and spring and moderately brackish in the late summer and fall. Of course, the amount of salt content will vary from season to season and year to year, dependent upon the amount of fresh waters brought down by the rivers. In general, the salt content will vary from 0 to .01 ppt. in the upper bays in the spring months and from 1 to 3 ppt. in the late summer and fall months. In the lower bays and along the Causeway, the salt content will vary from .01 to .3 ppt. in the spring and from 3 to 5 ppt. in late summer and fall. Salt water intrusion has been recorded as far as 21 miles north of the Bankhead Tunnel at the foot of Government Street in Mobile.

Turbidity

The rivers that enter the Delta bring a great deal of silt when they are at or near flood stage at which time the streams and bays become muddy. Soon after the river waters have receded the bays begin to clear. During the periods of salt water intrusion the streams are clear enough that a secchi disk can be seen at a depth of over six feet. Wave action roils the bays and increases the turbidity. High south winds or strong north winds make some of the bays muddy. The waters clear relatively fast after they have been roiled by wind, and from two to three days after high winds the bottoms of most of the bays are again visible through the clearer water. Fish, such as mullet and buffalo, also roil the water. In some cases, they not only stir up the silt in the bottoms of the bays but also uproot some of the vegetation. Such fish-caused turbidity is usually local, but probably is a factor in limiting vegetation in some of the smaller bays.

Temperature Range

Water temperatures average 61 to 65 degrees F. in winter and 80 to 86 degrees F. in summer.

Depth Range

Water depths in the bays of Mobile Delta range from 0 to 5 feet, and average about 2 feet. Tidal fluctuations cause considerable change in water depths. Unlike most of the coastal portions of the U. S. where there are two tides a day, Mobile Bay is on that portion of the Gulf Coast where there is only one tide daily. Tide fluctuation is relatively uniform throughout the Lower Delta area. In fact, at Mt. Vernon, 41 miles up the Mobile River, at low water stages there is only 0.4 feet less fluctuation than at the foot of Government Street at the mouth of the river. The average daily fluctuation is approximately 1.55 feet. During the period of spring tides, however, which occur on the new and full moon, there is usually from two and one-quarter to two and one-half feet difference between high and low tides. During neap tides, which occur during the first and third quarters of the moon, the tidal range is usually under one foot. The tide cycle, from high to high or low to low, takes approximately 25 hours. At the time of a neap tide there is a re-arranging of time and a new cycle begins. From September 15 through March 15, the high tides occur at night, and during the remainder of the year the high tides occur during the daylight hours.

Bottom Type

Soils throughout the Mobile Delta are alluvial. The harder soils, made up of heavier sands, are found on the river banks and on the outer edges of the bars. Soft, mucky soil is found in most of the bays and lower marsh. The alluvial sands and silts are mixed with various amounts of organic materials and the color is gray to black. Well-drilling activities reveal that this type of soil extends at least 70 feet deep in the lower portion of the Delta. All soils are apparently slightly more acid than the bay waters.

When a stream loaded with silt enters a bay free from strong currents, deposition occurs as a result of the checking of the streams velocity as it enters the still body of water. The coarse particles are dropped immediately, and the finer ones are carried farther out into deep water. Natural levees are built up and marsh plants begin to grow. Between the sides of an inverted V of marsh there is an open bay. Typical of this formation are John's Bend and Polecat Bay.

The lower ends of such bays are eventually closed by anastomosis of the river channels; thus deltaic islands are formed. Chuckfey Bay is an example wherein closure is nearly complete. Closed bays continue to be subjected to interior filling, which in time reduces the original bay to a swamp-drainage bayou. Coincident with this process of filling is the development of tree swamp. Typical swamp bayous are Oak Bayou and Irving's Lake.

Since the Mobile area is a natural alluvial Delta, there will be continuous silting, and the present Causeway will hasten the filling in. It is probable that in 50-100 years the area below the Causeway will be a system of bays somewhat like those above at the present time.

River Flow

The flow of the rivers emptying into the Mobile Delta varies considerably from flood periods during the spring months to dry periods during the fall months. During the spring, the discharge often exceeds 50,000 cubic feet per second, while in the fall, the discharge may be 10,000 cubic feet per second or less.

Navigation

All rivers of the Mobile Delta area are navigable by small craft with masts less than 20 feet high. Depths range from 10 to 100 feet. The Mobile and Tensaw are navigable by large river craft, since lift spans are present in the highway bridges across these streams. Even ocean-going vessels may navigate these rivers, and there is a fleet of several hundred "Liberty" ships anchored in the vicinity of Gravine Island.

Only small boats of the outboard type may navigate in the open bays, and even these are somewhat limited during periods of low tides.

Mudshell and Minerals

There is no mudshell or mineral industry in the Delta above the Causeway. However, exploration for oil and gas have been made, and are being made at the present time. Shell dredges are encroaching closer and closer to the Causeway in the open bays to the south. They are now within the three mile limit, and are beginning to destroy the outer reaches of vegetative growth.

Waste Disposal

Spoil from the dredging of Mobile River (and the greatest threat to fish and wildlife) has caused much silting of Polecat Bay which has practically destroyed its value as a fishing and waterfowl area. A large amount of waste is dumped into the Mobile River from paper mills, an aluminum ore plant, and other industries in the vicinity. Recently constructed chemical plants several miles upstream are now posing a serious threat to fish and wildlife in the Delta area. It has been proposed to construct a dike across Spanish River which would keep this waste and pollution confined to the Mobile River in the area above the Causeway.

Recreation (Other than Fish and Wildlife)

The Delta area is receiving more and more use each year for pleasure boating, skiing, picnicing, and other recreational uses. A State Park has been created on several hundred acres in the vicinity of John's Bend across from the Thunderbird Inn. Pineada Island, which includes all of the area north of the Causeway between Blakeley and Apalachee Rivers, is a private enterprise begun a few years ago. It proceeded at a rapid pace for awhile, but has been slowed recently due to bankruptcy of the developers. Plans for this area call for a large hotel, airport, golf course, swimming beach, boat marina and other recreational attractions.

Prior to 1939, there were only four or five concessions and boat rental establishments on the Delta area and along the Causeway, while today there are about 20 such businesses. The Causeway also is dotted with restaurants, service stations, and other small businesses.

Development Projects Completed

There are no fish or wildlife development projects on the Mobile Delta. The State-developed Meagher Park was created by dredging sand and filling in a large portion of the John's Bend section. This has completely eliminated an area that previously wintered bout 5,000 ducks each year. The area was filled in about 1955, and no further development has been accomplished. As a result of lying in an abandoned state, the sand has settled extensively and tidal action has caused a breakthrough from the river to the bay side which has divided the area. Plans still exist to further develop this area with a sandy beach, casino, cabins, picnic and recreational area, etc.

Development Projects Proposed

Plans have been drawn and pipes are being placed to begin anew the dredging of the Mobile River channel. This dredging will again dump thousands of tons of fill material into Polecat Bay.

Surveys are now almost complete for Interstate Highway No. 10 to cross the Lower Delta area. The Highway Deaprtment accepted the Conservation Department's recommendations as to the route and type of construction for this highway, for which we are most grateful. This highway will enter the Delta area along the east side several hundred yards below the present Causeway and extend northwestward and across the present Causeway into the southeast end of Choccolata Bay and into the present Bankhead Tunnel which will then be used only for westbound traffic. A new tunnel will be constructed just below the present one for eastbound traffic. This super highway will be completely bridged for the entire distance across the Delta on piling, according to our recommendations, instead of an earthern fill as originally planned several hundred yards north of the present Causeway.

Surveys are complete and construction is about to begin on Interstate No. 65 which will cross the Upper Delta area above Gravine Island. This highway will have no great effect on wildlife, and we have made no specific recommendations for its construction.

Delta Fisheries

Approximately 25 commercial fishermen use trammel nets, gill nets, slat-traps, and lines in the Delta area. They catch primarily mullet, buffalo, carp, sturgeon, channel bass, speckled trout, and catfish. A number of individuals take blue crabs commercially in the Delta bays. A conservative estimate of the wholesale value of commercial fish taken from the area would be $100,000 a year.

For at least eight months a year, from 200 to 300 sport fishermen use the Delta area daily. During the remaining four months, the average is about 100 fishermen daily. They catch both fresh and salt water species including largemouth bass, white bass, yellow bass, bluegill, shellcracker, crappie, warmouth, catfish, speckled trout, white trout and channel bass. In addition, there is a moderate to heavy amount of soft-shell crabbing and flounder-gigging at night. Based on an average of $10 spent per trip for fishing gear, bait, gasoline, travel, quarters, etc., it is estimated that the sport fishery value of the Delta area is at least $1,000,000.

Perhaps one of the most important and most valuable resources of the Delta area is the spawning and rearing habitat afforded the shrimp, crabs and other shellfish.

Wildlife

The number of hunters is small when compared to the number of fishermen who use the Delta area. Yet it is estimated that there are an average of 12,000 man-days of hunting effort per year of which about 7,500-10,000 are waterfowl hunters and the remainder rabbit, nutria, snipe, rail and other game hunters. The value of hunting (based on the average of $10 spent per hunter per trip) is estimated to be $120,000. In addition, a number of trappers work the Delta area for nutria and muskrat, and their fur take is valued at about $10,000.

Pollution Caused Fish Kills that Have Occurred in the Mobile Area Since January 1, 1968

Location	Date	Number of Fish Killed
1. Dog River	5-19-68	52,780
2. Tombigbee River	6-17-68	50,000
3. Tombigbee River	6-28-68	51,246
4. Dog River - Eslava Cr.	7-11-12-68	135,243
5. Dog River	7-17-68	343,711
6. Dog River	7-30-68	198,545
7. Dog River	7-30-68	396,836
8. Dog River	8-4-68	289,404
9. Dog River	8-6-68	463,063
10. Three Mile Creek	8-12-68	6,900
11. Dog River	8-16-68	25,000
12. Dog River	8-29-68	220,000
13. Dog River	9-4-68	358,000
14. Industrial Canal (Three Mile Creek)	9-6-68	146,500
15. Dog River - Eslava Cr.	9-6-68	1,023,367
16. Industrial Canal (Three Mile Creek)	9-17-68	378,000
17. Chickasaw Creek	9-25-68	5,013
18. Dog River	9-27-68	650,000
19. Dog River	9-28-68	2,501
20. Dog River	10-4-68	175,215
21. Dog River	10-7-68	163,620
22. Dog River	10-25-68	27,500
	Total to date	5,162,444

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Pollution Caused Fish Kills That Have Occurred in Other Areas of the State Since January 1, 1968

Location	Date	Number of Fish Killed
1. Saugahatchee Creek	6-17-68	8
2. Black Warrior River	7-11-68	28,900
3. Cedar Creek	7-25-68	3,225
4. Whitfield Canal (Lake Demopolis)	8-12-68	1,192
5. Lake Demopolis	8-25-68	15,349
6. Black Warrior River	10-1-68	585
	Total to date	49,259

AUBURN UNIVERSITY

AUBURN ALABAMA
36830

SCHOOL OF AGRICULTURE AND
AGRICULTURAL EXPERIMENT STATION SYSTEM
ORNAMENTAL HORTICULTURE FIELD STATION
MOBILE, ALABAMA

Reply to:
P.O. Box 8276
Mobile, Alabama 36608

Telephone 342-2366
Area Code 205

October 9, 1968

Dr. Wilson Gaillard, President
Mobile County Wildlife and Conservation
Association
P. O. Box 664
Mobile, Alabama

Dear Dr. Gaillard:

As per your request I have recently investigated the availability of saw grasses available for depositing in the underwater ring in the outer portion of the oyster shell mat, (details of said oyster shell mat are shown in Dr. Wilson Gaillard Drawing #G010, revised 10-7-68) for installation around the perimeters of the original spoil made islands shown on said Drawing.

I have found the supply to be more than ample for the necessary work.

These saw grasses and related grasses if mechanically harvested "in bulk" and barged to the islands, and then deposited around outer rim of oyster shell mat, would form practically a solid wall of vegetation, giving protection from water erosion of that portion of the island that connects to the lower edge of the oyster shell mat.

These grasses are available in necessary quantities within a distance of less than 10 miles from islands, and this proximity to the islands plus the similar water salinity of the island locations, are very favorable factors.

Saw grasses (and related species) "in bulk ring deposited around the oyster shell mat approximately 5' wide X an average of 1' depth X total island perimeters totaling approximately 45,000 lin. ft. will also grow further out into the water for an additional distance, and thus affording excellent additional spawning areas as well as protection against wave action.

Very truly yours,

Raymond L Self

Dr. Raymond L. Self, Plant Pathologist

RLS:mfg

THE LAND-GRANT UNIVERSITY OF THE STATE OF ALABAMA

CBS PRODUCTS COMPANY
P. O. Box 8042
Mobile, Alabama

October 9, 1968

Dr. M. W. Gaillard, President
Mobile County Wildlife and Conservation
Association
P. O. Box 664
Mobile, Alabama

Dear Dr. Gaillard:

Per your request we are pleased to quote on harvesting and depositing a saw grass ring (also containing some related species) about 5' wide X 1' high X approximately 45,000 lin. ft. long, around the perimeter of the islands shown on your Drawing #G010, revised 10-7-68, for $35,000.

This price includes harvesting "in bulk" via mechanical equipment at locations not more than 10 miles from the islands, and barging "in bulk" to islands, and depositing the above quoted saw grass ring "in bulk" via mechanical equipment.

Sincerely,

CBS PRODUCTS COMPANY

G E Bass

G. E. Bass

GEB:mfg

TELEPHONE 473-4449

MARINE
STRUCTURES

NIGHTS & SUNDAYS 342-1159

INDUSTRIAL
PILE DRIVING

ERNEST CONSTRUCTION COMPANY

GENERAL CONTRACTORS

1814 OLD SHELL ROAD
MOBILE, ALABAMA 36607

To Dr. M. Wilson Gaillard, Sr.	Date Oct. 1, 1968 Job No.
Address 3500 Cedars Ave.	Project
City Spring Hill, Alabama	Location
Attention:	

WE OFFER FOR YOUR ACCEPTANCE TO FURNISH LABOR, EQUIPMENT AND SUPERVISION AND SUCH MATERIAL AS NOTED FOR PERFORMING THE FOLLOWING DESCRIBED WORK, SUBJECT TO THE GENERAL CONDITIONS AS HERINAFTER WRITTEN AND IF ACCEPTED ENTER YOUR ORDER AS FOLLOWS:

DRODODA-

Per your drawing for proposed spoil Islands for oyster shell Mat drawing for Dr. M. Wilson Gaillard Sr. Alt. 9-18-68 we are pleased to quote on apt. 45,000 lineral feet of shore line oyster shell mat. Price include all labor and material for furnishing such mat in place at $ 2.50 per lineral foot of shore line.

Submitted by

Walter C. Ernest III
Ernest Con. Co.

AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS, DELAYS OF CARRIERS OR ANY OTHER DELAYS UNAVOIDABLE OR BEYOND OUR CONTROL.

11-1

M. WILSON GAILLARD, D.D.S.
1508 MERCHANTS NATIONAL BANK BLDG.
MOBILE, ALABAMA

NEW ADDRESS:
319 So. Sage Ave.
Mobile, Alabama 36606

October 28, 1968

Honorable Stewart Udall, Secretary
Department of Interior
Washington, D. C. 20013

Dear Secretary Udall:

Enclosed is a personal study of an estuary problem, submitted in the hope it may be helpful in two respects: First, that it may assist in obtaining your approval of the proposed Theodore, Alabama Ship Channel by showing local endorsement of a local project.

Second, that the opinions herein expressed might be included in the National Estuarine Pollution Study. It is my understanding the Act of 1966 did request individual views.

May I again express my appreciation for your beautiful review of my book "Moving The Earth--For A Song." Profits from our sales will be used to protect our Mobile estuary through an educational program.

Respectfully,

Wilson Gaillard

M. Wilson Gaillard, D.D.S.

MWG:ew

Encl.

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Moving the Earth—for a Song M. WILSON GAILLARD

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Moving the Earth—for a Song

M. WILSON GAILLARD

$4.00

Moving the Earth—for a Song

M. WILSON GAILLARD

Our wildlife heritage is in jeopardy. As the human population increases, so do human encroachments.

It all started with the early settlers. They cleared land for villages and farms, chopped down trees for lumber, killed fur-bearing animals for clothing, slaughtered birds for food and pleasure. No one thought the supply would ever be exhausted. But, before long, wildlife became depleted near civilized areas. It took 300 years to curb this wasteful hunting and wanton destruction of wildlife.

M. Wilson Gaillard reviews the history of conservation in North America and of organizations devoted to the preservation of natural resources. He tells the story of the efforts of groups such as the National Audubon Society, the American Ornithologist's Union, the National Wildlife Federation, and Ducks Unlimited.

But much remains to be done. The author feels that the problem may be tackled in two ways. "First, by setting aside acreage in critical areas while land is still available; second, by making all our remaining wild land produce more food for birds and other wildlife."

This second approach fits the individual into the conservation picture. Planting a tree, putting up a feeding station, installing a birdbath, constructing a birdhouse—these are some do-it-yourself conservation projects Dr. Gaillard suggests.

Life would be unbearably bleak without the beauty of nature. Can you imagine the world without flowers or shrubs, a spring morning without budding trees or singing birds! These are the simple joys of nature which we accept so casually, but which future generations will be denied unless we are willing to move the earth—for a song.

Roy Thigpen, courtesy of Sinclair Oil

The Author

M. Wilson Gaillard, a Mobile, Alabama, dentist, uses a great deal of his spare time to promote conservation. For the past 35 years he has helped develop a hunting club on a large river plantation where deer, wild turkeys, and other game abound. Dr. Gaillard has also established several bird sanctuaries, two of which have received national attention—one at the famous Bellingrath Gardens, and the other at nearby Dauphin Island, Alabama.

In 1967 he received the Governor's Award as Alabama Conservationist of the Year. A major oil company told the story of his Dauphin Island work in one of their public service messages and commented, "Next time you hear a bird sing, it could be through the courtesy of Dr. Gaillard and his friends."

PHOTOGRAPHS: Painted bunting—I. D. Denney, Mobile, Alabama
Bird sanctuary—Thigpen Photography, Mobile Alabama

JACKET DESIGN by Robert A. Stratton

"To save the habitat of migrating birds, Dr. Gaillard did more than move the earth. He swept aside indifference, helped to re-create what had already been partially destroyed, and saved for children yet unborn a legacy which is part of the nation's real wealth. This is a book worth reading—not just by conservationists, but by all who care."—**Stewart L. Udall, Secretary of the Interior**

"It is heartening that so many citizens are becoming awake to the importance of environmental quality. Dr. Gaillard's book expresses this concern and we congratulate him on his contribution."—**Roland C. Clement, Vice President, National Audubon Society**

"*Moving the Earth—for a Song* is a book deserving of acceptance and one that should be in every outdoorsman's library."—**Lawrence J. Durkin, East Coast Regional Director, Ducks Unlimited, Inc.**

"This is conservation everyone can understand and use, written by one recently awarded the Alabama Conservationist of the Year trophy."—**Claude D. Kelley, former Director, Alabama Department of Conservation**

"A colorful story of nature written by one who has spent much of the last sixty years hunting, fishing, and camping in wilderness country."—**Walter Cook, President, Alabama Wildlife Federation**

"Dr. Wilson Gaillard has answered the question, What can I do for conservation? Every individual should read his answer."—**Walter L. Mims, Vice President, National Wildlife Federation**

STATEMENT

BY

R. H. ALLEN
SENIOR VICE PRESIDENT
ASSOCIATED INDUSTRIES OF ALABAMA

AT THE

FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
NATIONAL ESTUARINE POLLUTION STUDY

MOBILE, ALABAMA
NOVEMBER 21, 1968

STATEMENT OF MR. R. H. ALLEN
OF THE ASSOCIATED INDUSTRIES OF ALABAMA
TO FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
MOBILE, ALABAMA
NOVEMBER 21, 1968

Gentlemen:

My name is R. H. Allen; I am Senior Vice President of the Associated Industries of Alabama and in this capacity I appear before you today. This group I am associated with represents the great bulk of the industrial establishments in the State of Alabama, most of whom are water users situated on the watersheds of the rivers and streams which flow into the estuaries of coastal Alabama.

As a group, the companies and the payrolls of the companies that we represent, constitute one of the most important factors in the economic life of the various groups that go to make up the estuarian community and the people of Alabama in general. We are also users of the many natural resources that are so plentiful in Alabama -- forest products, minerals, farm products, water transportation and water.

It is not very important that this area has a fast growth cycle of pine and hardwood trees, if those who grow them do not have a convenient and profitable market for their utilization as pulpwood, lumber, flooring, furniture, mine pit props and the like. At the same time, and this is important, it should be recognized that the same individuals who furnish the management and labor for these industries are themselves among the most avid hunters, fishermen and conservationists that can be found in the State. Therefore, both as good corporate citizens and as interested and responsible individuals, we are as much concerned as is anyone else with providing an industrial and social climate and atmosphere in which the users of our abundant resources can enjoy themselves to the utmost and remain prosperous at the same time. This can be achieved if we work together with good will and in good faith, and if we remain mindful of reasonable economics, feasible technology, and the greatest good to the greatest number of the citizens that constitute our community.

Toward that end, we have carefully examined the outline of this study and we feel that the objectives are good. Industry has a direct interest in coastal waters and in the utilization of them. Collective industry, which we fundamentally represent in this State, is really a public interest because essentially industry is no more and no less than a collection of workers who provide a service for the entire community.

We note with interest and with some concern that a number of assumptions have been made for the purposes of this study. We hope the study will be addressed toward taking a careful and thorough look into the problem of the estuaries, and that it will not be simply a system for justifying the assumptions that were made. An early phase of this study should effect a concise and reasonable definition and extent of an "estuary." Effective management and multiple use of the water resource have become increasingly important and will become even more important in the future, as populations and industrial works increase.

Research in the water resource field to date, while commendable, is in many ways still in its infancy -- yet it is vital to establishing effective management and we are presently quite short of information and hard facts. It is in this area of extended research and determination of facts that we feel the Federal authorities can most beneficially direct their attention and energies.

Management stems from "what can be done" -- and accordingly, research in this field cannot be continually negative if we are to establish proper direction and approach. There should be, there even must be, vigorous effort expended to determine what can be done, since progress stems from what we can do, practically, with present technology and with the continuous advancement in technology.

Conservation should be dynamic, not static, and the mere holding of existing resources is not genuine conservation, nor is it reasonable, sensible or practical. Industry has concerned itself in dynamic conservation for a long time. Large amounts of time, effort and money have been, are being, and will be invested in the area of air and water resources, and the record of the members of this association compare favorably with that of any other group, however constituted.

In connection with this, it should be observed that this was done and is being done despite the fact that improved technology probably will cause much of the capital installation to become obsolete and this likely will happen within a relatively short time.

It should also be observed that while water is a renewable resource, in the sense that none can be destroyed, we cannot increase the available quantity because we cannot create water, so the use of water must be multiple just to keep up with present needs, to say nothing of the increasing needs of our increasing population. Ways must be found to meet these needs if our standards of living are to be maintained and, hopefully, improved. This growth will necessitate many changes including more manufacturing plants nation-wide. It is more imperative than ever to develop "what can be done." One of the vital areas of information needed, in addition to what can be done, is how far can we go without limiting the renewability of our aquatic resource and our water resource.

Proper management requires "can do" information. We hope and we urge that the study and the research work in this project will be structured to recognize the dynamic future of the situation and the probable desires and needs of future generations in addition to our own. We also hope that the project will produce plans for development, particularly in research, of management information and technical information in the positive area of "what can be done."

Specifically with respect to our estuarine waters in Alabama, it should be noted that they do in fact provide multi-purpose use for all the people. These waters are used for recreation, navigation, transportation, commercial and private fishing and shellfishing, industrial use and, in some areas, municipal water supply and waste disposal. Each of these requirements of man's total environment should be available in these waters, preferably on a zoned basis, but not all at the same location at the same time. Specific areas have been assigned specific usages by the Alabama Water Improvement Commission to fully utilize these waters for the greatest advantage of the entire community.

An overwhelming majority of the industries of Alabama have met with the Alabama Water Improvement Commission with regard to possible pollution of our waters and of how best to abate any that existed. From these meetings have come projected forecasts for construction and operation of facilities to improve the condition of these waters, as expanded and new industry comes into the picture and to go along with the facilities which already have been built to meet the requirements of existing industry.

In support of our preceding comments on the benefits of this study, we feel that research on the professional and technically proficient level should be conducted on our estuarine waters to determine what pollution exists. Until we really know what, if anything, is present -- we say "if anything" because we have reports that current shrimp and crab catches have been excellent -- and until we factually know what would be required to maintain or improve the present levels, our civic, municipal, industrial and other concerned groups have no acceptable adequate basis on which to move. Without this knowledge, expenditures could be made which were without justification, desirable approaches could be overlooked, and wasteful, detrimental limitations of use could be set up.

Since the headwaters feeding the estuaries of Alabama are almost entirely intrastate waters of Alabama, we feel that the control of all these waters should be with the Alabama Water Improvement Commission. The Alabama Water Improvement Commission has already classified most all the waters of Alabama, including the estuaries, into categories that benefit the needs of Alabama. They have an excellent organization manned by outstanding personnel. Through their endeavors the waters of Alabama will not be degraded but will be enhanced even with the increased use of our waters by expansion of both municipal and industrial needs.

We also feel that the aforementioned studies and research should fall under the authority of the Alabama Water Improvement Commission so that federal, state and local monies could be pooled and the work administered by the one authority so there will be little, if any, duplication of efforts.

Our water control act is fair and workable, our Water Improvement Commission is doing an excellent job, our schedules are being and will be met. We urge again that control of these vital matters be left in State control, with the responsibility and the authority being centered in our Alabama Water Improvement Commission.

Gentlemen, we appreciate the opportunity of appearing here today to present the views and recommendations of the Associated Industries of Alabama.

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UNIVERSITY OF ALABAMA
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BAYOU LA BATRE, ALA., 36509
TELEPHONE 824-2146 – AREA CODE 205

DR. GEORGE A. ROUNSEFELL, DIRECTOR
Professor of Marine Biology

DR. E. CARL SENSENIG, CHAIRMAN
SCIENTIFIC ADVISORY BOARD
Professor and Chairman – Department of Anatomy
U of A Birmingham, Alabama 35233
Telephone 325-4565 – Area Code 205

December 2, 1968

Mr. John R. Thoman, Regional Director
Federal Water Pollution Control Administration
Southeast Region
Suite 300, 1421 Peachtree Street
Atlanta, Georgia, 30309

Dear Mr. Thoman:

Please find enclosed a statement which you requested, of federal funding required to investigate some of our most pressing problems in Mobile Bay. Funding at this level would permit study of the interactions of physical, chemical, bacteriological, and biological factors. A three year intensive program is envisioned. During the fourth year emphasis would be shifted toward a regular monitoring program which would be fully operational in the fifth year. Once the monitoring program is initiated, funding should continue at approximately the fifth year level. The annual cost of the continuing program would depend on the number of stations at which monitoring would be required and can not be estimated exactly at this time.

Also please find enclosed a copy of an abstract from the paper:

Austin, George B. 1954. On the circulation and tidal flushing of Mobile Bay, Alabama, Part 1. Thesis. The Agricultural and Mechanical College of Texas. 28 pp. + appendix.

Copies of the following figures are also included for possible inclusion:

Figure XI	Surface temperature distribution (for ebb and flood tide stages)
Figure XII	Surface salinity distribution (for ebb and flood tide stages)
Figure XIV	10 foot depth salinity distribution (for ebb and flood tide stages)

Figure XV	Percent fresh water concentration
Figure XVI	Streamlines of velocity ebb tide surface currents
Figure XVII	Streamlines of velocity flood tide surface currents

If in your opinion the above figures would reproduce poorly, please feel free to omit them.

Thank you again for the opportunity to express our views.

Very truly yours,

Hugh A. McClellan
Marine Biologist
Marine Sciences Institute

HAMc:mft

Ecl:

BUDGET

FEDERAL

	1st year	2nd year	3rd year	4th year	5th year
Salaries	$ 45,000	$ 45,000	$ 35,000	$ 25,000	$ 20,000
Equipment	20,000	10,000	5,000	5,000	5,000
Supplies	8,000	4,000	3,000	2,000	2,000
Data reduction & evaluation	3,000	5,000	2,000	2,000	2,000
Vessel operation	25,000	20,000	8,000	5,000	3,000
Travel	3,000	2,000	1,000	1,000	500
Communications	600	500	500	500	500
	104,600	96,500	54,500	40,500	33,000

UNIVERSITY

	1st year	2nd year	3rd year	4th year	5th year
Salaries	12,000	10,000	8,000	8,000	8,000
Supplies	1,000	1,000	1,000	1,000	1,000
Travel	500	500	300	200	200
Laboratory & Office facilities	6,000	6,000	4,000	3,000	2,000
	19,500	17,500	13,300	11,200	11,200

ON THE CIRCULATION AND TIDAL FLUSHING OF MOBILE BAY, ALABAMA, PART I

George B. Austin

Abstract

A description of the results gleaned from a hydrographic survey of Mobile Bay, Alabama is presented. A brief oceanographic description of this bay is made also, from the standpoint of the five phases of Oceanography as defined by D. F. Leipper (1950). The presentation and discussion of the distribution of temperature, chlorinity and fresh or river water, and a description of the currents observed constitute the greater portion of this paper.

The author evaluates two ideas or methods of estuarine flushing determination offered by B. H. Ketchum (1950) and H. Stommel (1951) as they apply to Mobile Bay. The observed distributions and variations in chlorinity as affected by tidal changes were used for a control in the above investigation. A flushing time for this estuary for the period of the survey (October, 1952) was found to be fifty days.

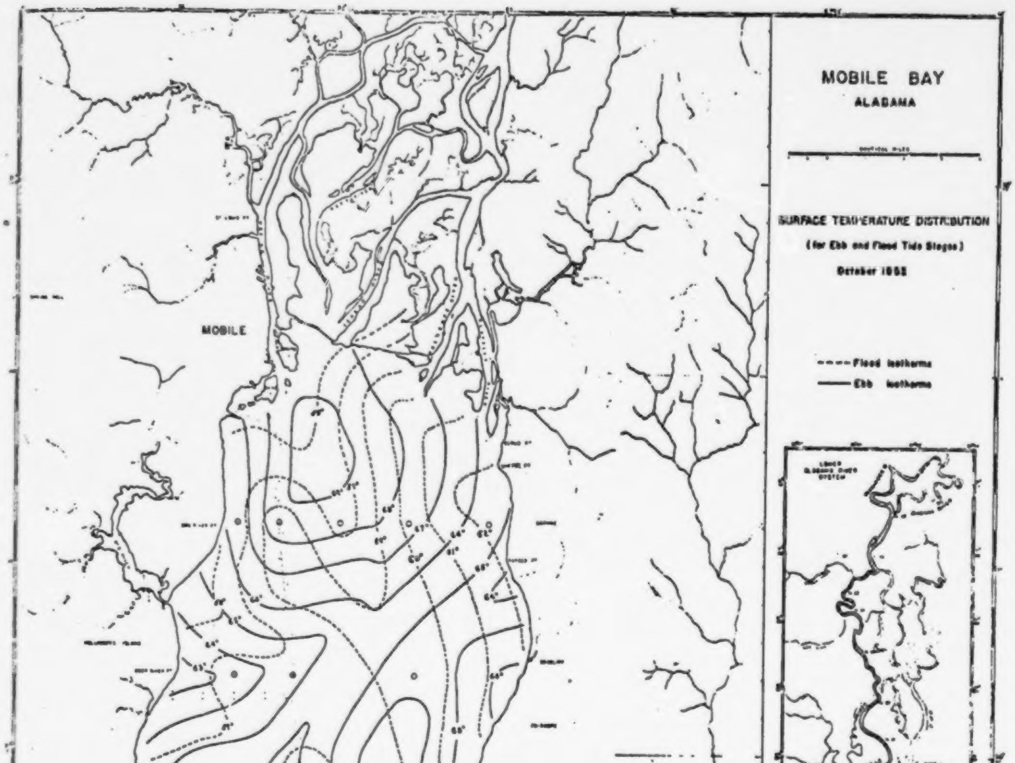

MOBILE BAY
ALABAMA
SURFACE TEMPERATURE DISTRIBUTION
(for Ebb and Flood Tide Stages)
October 1955
Flood Isotherms
Ebb Isotherms
MOBILE
GULF OF MEXICO

FIGURE XI

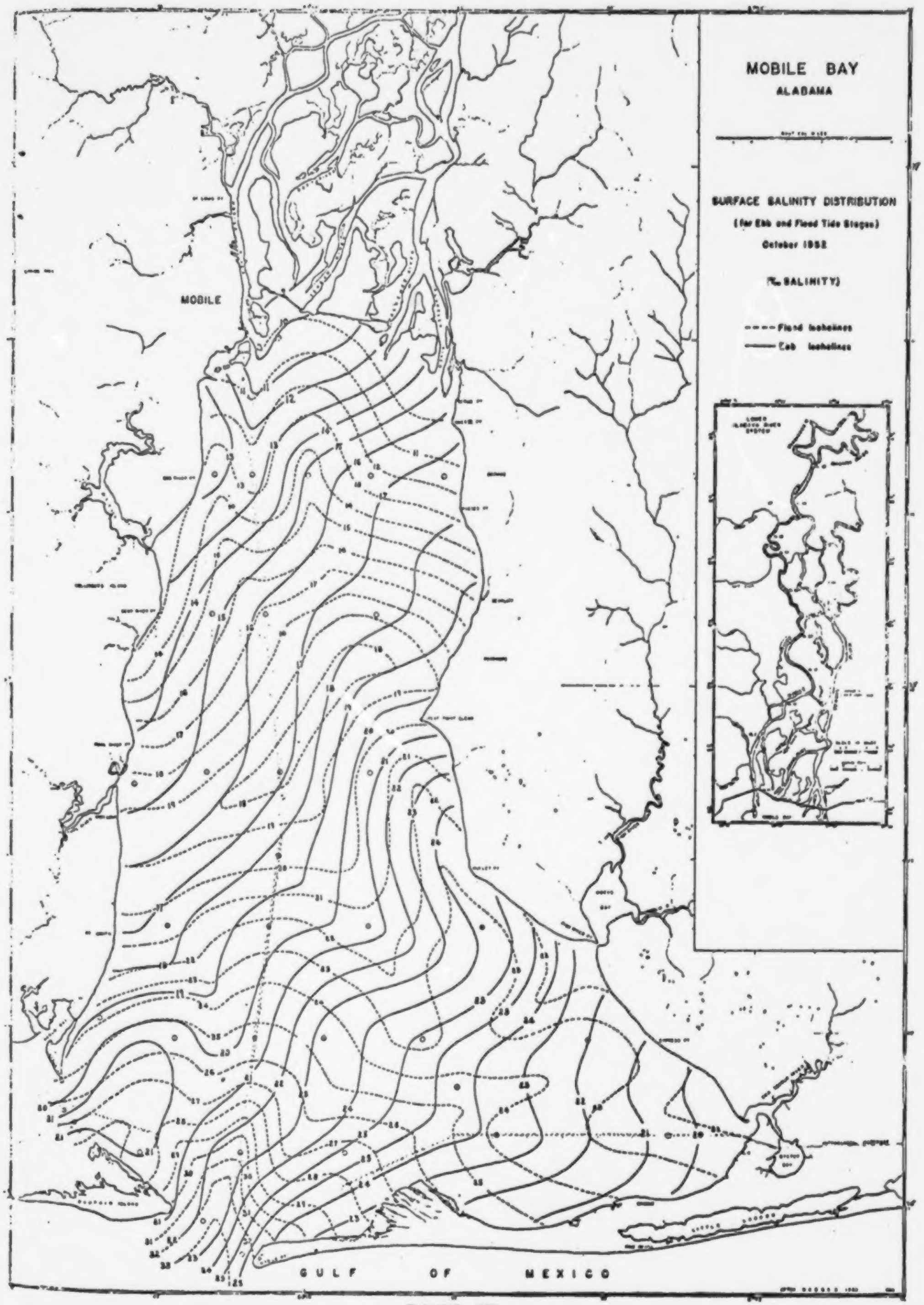

MOBILE BAY
ALABAMA
SURFACE SALINITY DISTRIBUTION
(for Ebb and Flood Tide Stages)
October 1952
(‰ SALINITY)
Flood Isohalines
Ebb Isohalines
MOBILE
GULF OF MEXICO

FIGURE XII

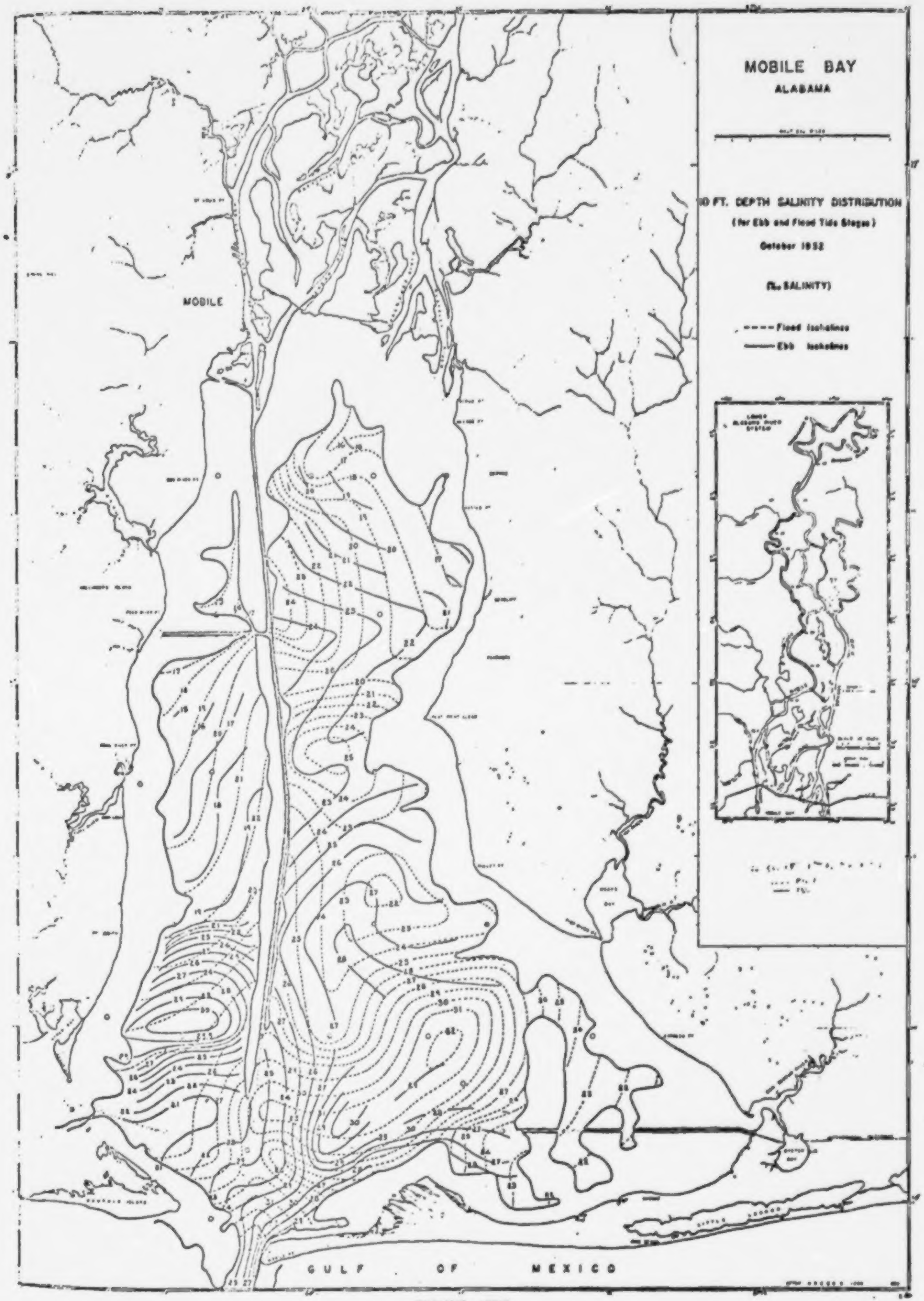

MOBILE BAY
ALABAMA
10 FT. DEPTH SALINITY DISTRIBUTION
(for Ebb and Flood Tide Stages)
October 1952
(‰ SALINITY)
Flood Isohalines
Ebb Isohalines
MOBILE
GULF OF MEXICO

FIGURE XIV

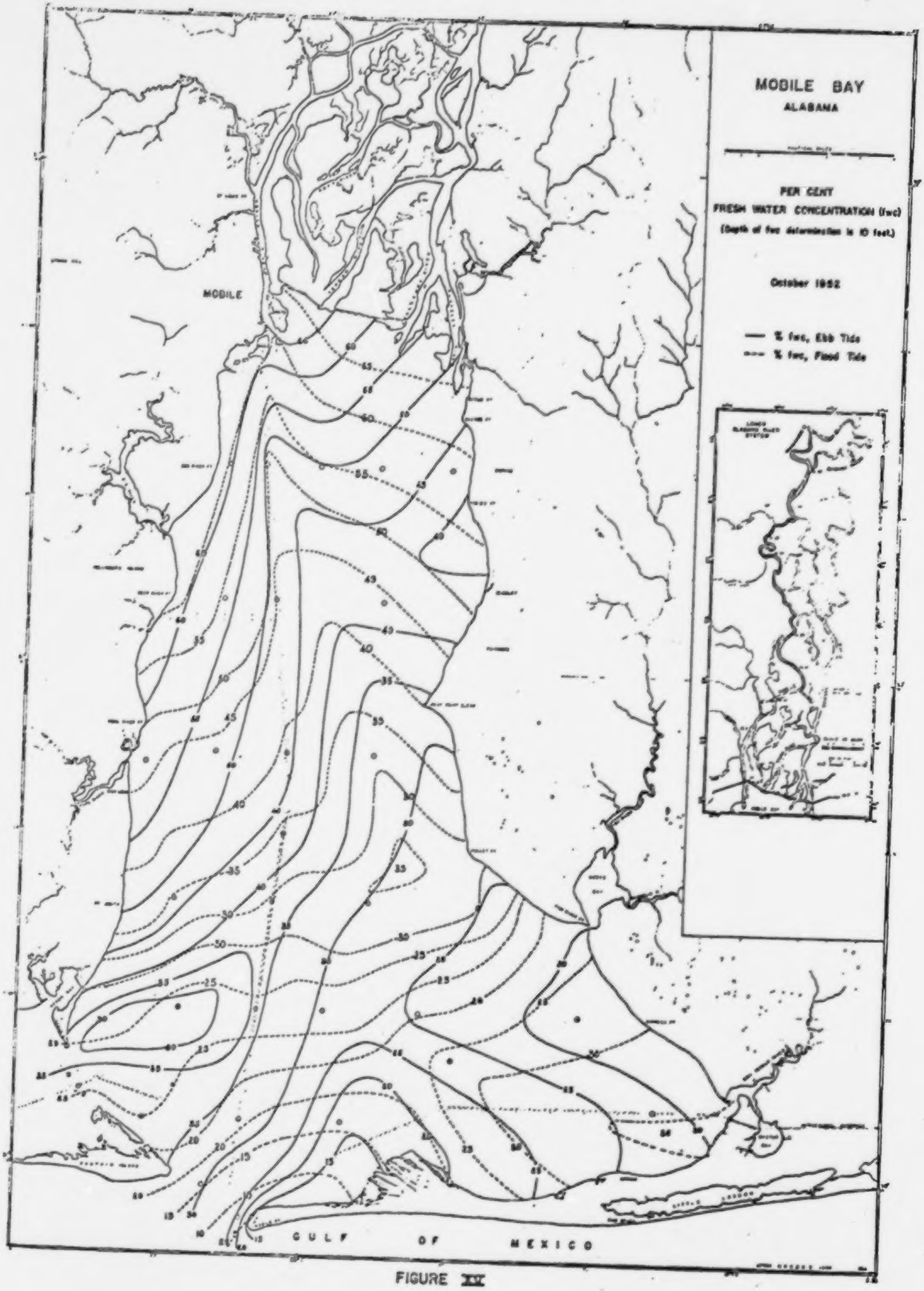

MOBILE BAY
ALABAMA
PER CENT
FRESH WATER CONCENTRATION (fwc)
(Depth of fwc determination is 10 feet)
October 1952
% fwc, Ebb Tide
% fwc, Flood Tide
MOBILE
GULF OF MEXICO

FIGURE XV

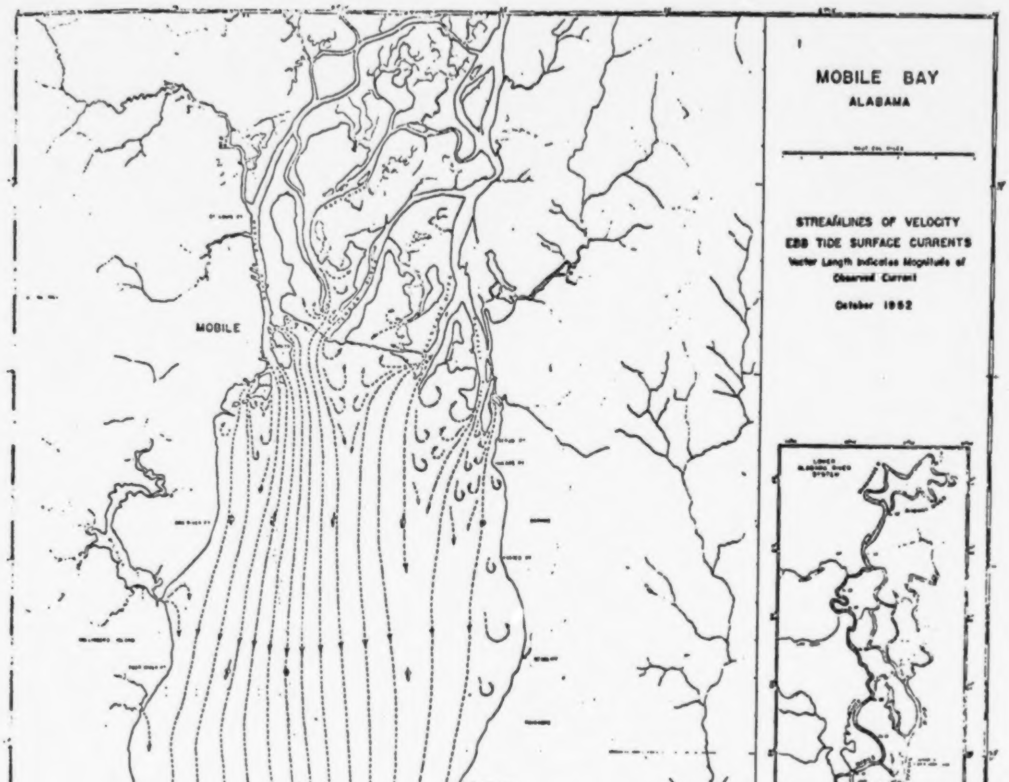

MOBILE BAY
ALABAMA
STREAMLINES OF VELOCITY
EBB TIDE SURFACE CURRENTS
Vector Length Indicates Magnitude of
Observed Current
October 1952
MOBILE
GULF OF MEXICO

FIGURE XVI

Reproduced from best available copy.

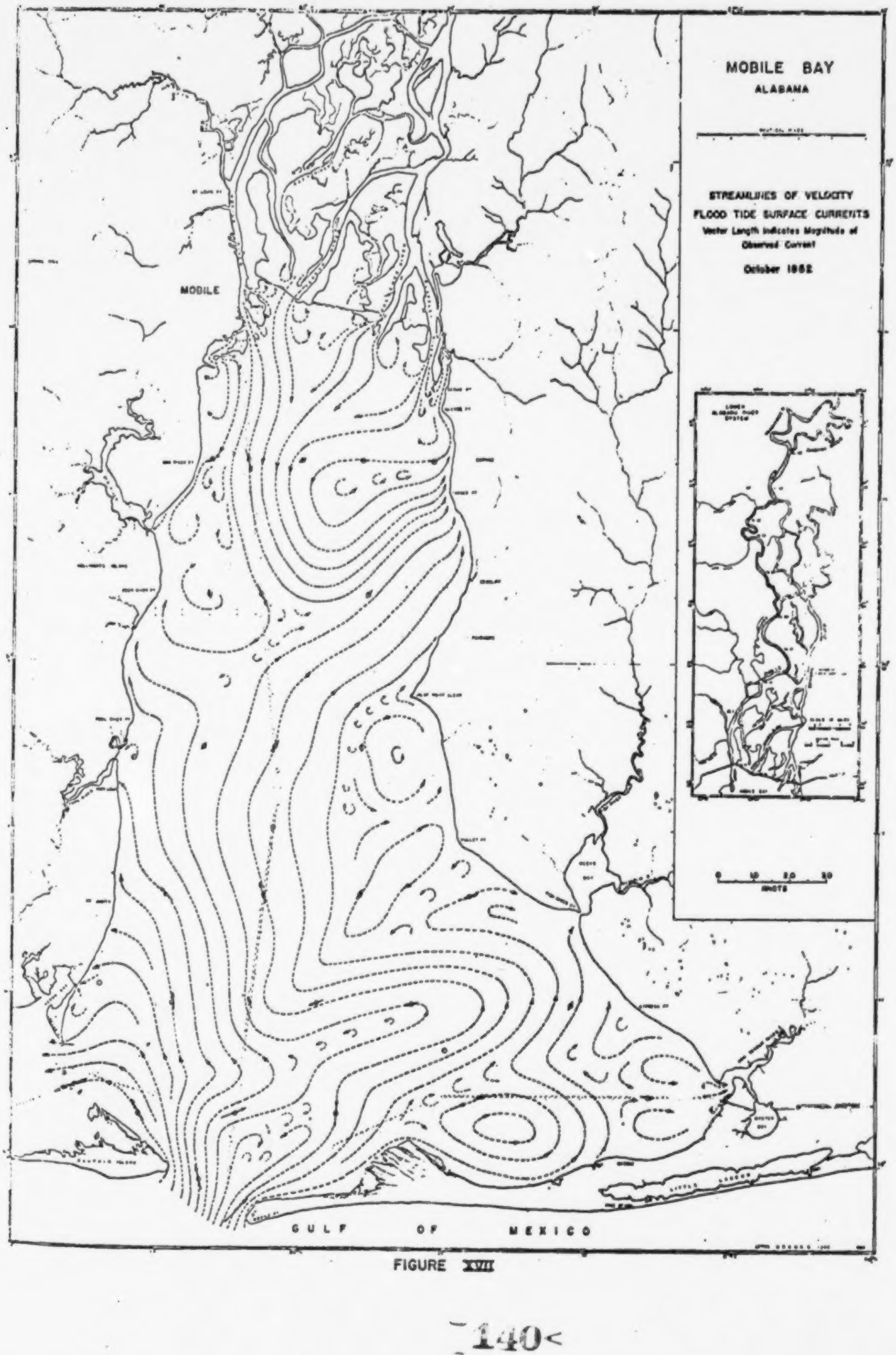

MOBILE BAY
ALABAMA
STREAMLINES OF VELOCITY
FLOOD TIDE SURFACE CURRENTS
Vector Length Indicates Magnitude of Observed Current
October 1962
MOBILE
GULF OF MEXICO
0 10 20 30
KNOTS

FIGURE XVII

MOBILE AREA CHAMBER OF COMMERCE

FORREST LITTLE
PRESIDENT

MOBILE, ALABAMA

November 29, 1968

Mr. John R. Thoman, Regional Director
Federal Water Pollution Control Administration
Department of the Interior
Athens, Georgia

Dear Mr. Thoman:

Subsequent to our testimony at the hearing in Mobile on November 21, 1968, we wish to enter the attachment statement by Mr. Harry E. Myers into the hearing record.

Sincerely yours,

Forrest Little
President

FL:G:sj

Enc:

Post Office Box 1784
Mobile, Alabama 36601

August 15, 1968

The Editor
The Mobile Press Register, Inc.
Post Office Box 2488
Mobile, Alabama 36601

Dear Sir:

Last Friday the Alabama Journal in Montgomery carried a feature article on pollution in Mobile and the Montgomery Advertiser carried the full story and picture on Saturday. I was much distressed over these two articles because while most of what was said was factual, the scope of the problem that they covered was extremely limited, both in surface area and in depth of investigation. My distress arises from the fact that a story covering a very small segment of our waters may by inference lead to a broad generalization that all of Mobile is a huge cesspool. There is great danger to Mobile's future economic growth if such generalizations are accepted as truth, for industry will then shun us like the plague. As a matter of fact, the furor around Mobile has prompted three highly placed individuals who contact and deal with new industry to state to me in confidence that at this time they hesitate to suggest Mobile as a possible [illegible] for new industry. If these people who talk to new industry have mental reservations about Mobile and can't enthusiastically try to sell industry on coming here, then we are in a bad fix.

There is reason for genuine concern by all the people of Mobile, because with the loss of 14,000 jobs at Brookley, we desperately need new industry and the jobs, and the income and taxes that it generates. Our County, its Cities and schools and all phases of our economy are dependent upon this money for successful operation. We need to know and to remember this.

This is the source of my concern and distress over the current news stories and why I am attempting to present some facts and thoughts that may be useful in evaluating our problem. It may be appropriate to state here as background that I have been actively engaged in advocating and working for pollution control for the past 30 years and have had the satisfaction of participating in the construction of dozens of waste treatment facilities all over the Gulf States. So what I say here is not in defense of polluters, but rather is presented as an attempt to promote better understanding.

First of all and most emphatically, the people of Mobile, Prichard, Chickasaw and Saraland can take justifiable pride in what they have done to abate pollution. All of them now have facilities to give what is known as secondary treatment to their wastes. Mobile has been the outstanding example in leading the way in progressive attacks upon the problem of pollution. It started a concerted effort 25 years ago, and as a side light was criticized for spending money on treatment facilities instead of on paving streets! Times change. Mobile was the model, its people understood the necessity for treatment and with very little complaint accepted the fact that they would have to pay for these facilities which they do through their water bills.

The four Cities, Mobile, Prichard, Chickasaw and Saraland, have spent about 23 million dollars on pollution control. The average cost to a water customer to build and operate these facilities is approximately $26.00 per year.

Mobile is probably 15 years in advance of the other major cities of Alabama in its attack upon this problem. I say to all Mobilians you can take pride in your City. We are growing, we still have problems, but they will be solved in the near future.

The fact that this great effort has been made should be remembered.

Dog River has had prominence in the news lately and deserves comment if the situation is to be brought into focus so that it may be evaluated.

In order to understand the problem a general knowledge of terms and concepts of pollution and treatment is needed; therefore, the following is advanced as simplified outline.

Pollution as currently used, is a very broad term; anything that is not pure may be termed polluted.

There are many forms of pollution, the most common being: (1) Depletion of Oxygen; (2) Floating Materials; (3) Color; (4) Toxic Materials; (5) Pathogenic (germs); (6) Temperature Rise.

The form causing Mobile problems is the first listed.

What is referred to locally and recently as pollution is in the form of "Depletion of the Oxygen". This simply means that the oxygen content of the natural water in a stream is lowered from say six parts of oxygen per million to four, three, or two parts. This condition can be temporary, lasting for a few hours, or it may be extended. It is caused by organic materials being discharged into the stream and these organic materials use up oxygen. It is very important to know that the source of organic material is not necessarily from sewage. Recent research has proven that overland flows of rain water from inhabited areas carry very substantial amounts of organics which seriously pollute and deplete oxygen, sometimes much more severly than does treated domestic waste.

Natural death and decay of weeds or the algae that grows in water deplete oxygen. There are even changes in oxygen content from daylight to darkness.

In times of high temperature and low rainfall there is a natural lowering of oxygen in local waters which, in effect, is also a depletion. This natural lowering of oxygen may account for variations of one, two or even three parts per million.

To wrap up "oxygen depletion", it can be caused by treated domestic waste, by storm waters from rain, by decay of vegetation and by weather circumstances. The correction of just one of these causes does not necessarily solve the problem, which is a fact to consider.

"Oxygen depletion" mainly concerns things that grow and live in water and if severe is injurious to fish. It is not a major factor in evaluating health.

In Dog River there have been several recent "fish kills" due to temporary depletion of oxygen, so this subject of kills should also be examined. The broad definition of fish covers almost any exclusively aquatic animal which breathes water and has scales. The definition makes no distinction of kind or size. In evaluating the local problem both "kind" and "size" need be considered.

A recent report was that there was a "fish kill" in Dog River of 135,243 fish. Samples of these "fish" were collected and preserved in alcohol, measured and weighed. Most would be what is commonly termed "minnows" being about 1½ to 1-5/8 inches long. It was estimated that it would take about 450 of them to make one pound. The total weight of 135,200 fish was estimated to be 300 pounds and the news article assigned and estimated value of $31.00 for the entire lot.

From Mid-July to the first week in August there has been reported a total "fish kill" of 1,338,953 fish of which 1,337,464 were menhaden. Their estimated weight was 2,254 pounds and their current commercial value was approximately $225.00.

Since nearly all these fish were menhaden, facts concerning their life and habits are of interest. Very briefly, the menhaden are spawned in the Gulf and are microscopic in size, soon after spawning they migrate to tidal estuaries such as Dog River usually arriving in early fall. They normally stay in the estuaries until May or June, then head back to the Gulf. Menhaden travel in large schools and some estimates are that a school may contain a billion fish. Menhaden have a very high need for oxygen and when they intrude into water whose oxygen content is low thus quickly die. When these large schools congregate in confined quarters they may themselves deplete the oxygen thus causing their own death.

They are not edible as fish, but they are important as food for other fish and as producers of oil or fish meal. Last year U. S. production was 119 thousand tons of menhaden caught, when if converted to numbers of fish would be truly astronomical. A comparison of the number caught and sold against those accidentally killed would be interesting.

In Dog River there is an approximate water area of 1,500 acres. The part which suffers periodic and severe oxygen depletion is confined to one main area which contains about 38 acres. Thus 1,462 acres of water surface in Dog River are not affected, percentage wise this means that 97.5% of Dog River feels no effect of the Eslava Plant. The particular place affected by low oxygen might well be described to a piston within a cylinder. This piston or slug of water moves bodily upstream as the tide comes in and moves a few hundred feet down as the tide goes out. In times of drought such as this there is no rain to disperse and wash it down the River. When these curious menhaden come in on high tide and run into this piston they perish. Last year I am advised that there were no reported kills.

So in summary, the principal fish that have been affected are these little menhaden, and in considering the high incidence of deaths, the weather and temperature must be remembered as should the very localized area in which the problem occurs.

As I said earlier, these facts are presented not to excuse any polluters, but simply to present facts to help understanding.

In line with understanding, a few words of explanation of "secondary treatment" previously mentioned may be in order. All four Cities now have secondary treatment and this is the highest degree of treatment required by the new Federal Pollution Laws. Many cities have had only "primary" facilities. Briefly, primary treatment consists of holding wastes in tanks for from 2 to 4 hours during which time much of the solids settle and floating material is skimmed off. The material thus removed is pumped to a digester where it undergoes biological processes rendering it harmless and inoffensive. The waste water is given a heavy dose of chlorine to kill germs and then is discharged to a stream.

Secondary treatment does all the above, but in addition (in one method) passes the waste water over filters for biological treatment, routes it to another holding basin for further settling, chlorinates to kill germs, and then discharges to the stream. In addition, there usually are more refinements in treatment such as pre-aeration, grit removal, and heating sludge.

Secondary treatment is usually over twice as effective as primary treatment and usually costs more than twice as much to build. Operating costs are also higher.

To give an idea of what this means to the average citizen, the cost of treatment facilities and the trunk sewers leading to them in all four Cities has been approximately 23 million dollars to date.

If this is equated to water users it means that the average cost to every water user in these four Cities is $2.17 per month.

No discussion of pollution abatement and costs could be complete without considering current trends and their effect upon the future. Twenty years ago "primary" was the degree of treatment commonly used, not necessarily because it was adequate, but because its cost was the most that water using citizens were willing to bear.

As time passed and concentration of people heightened, "primary" has become unacceptable and "secondary treatment" became the recognized standard for degree of treatment, and it still is. But with the additional cost came extreme problems for the Cities to finance and then to convince their citizens to bear the cost on their water bills.

There is at present great agitation for even higher degrees of treatment. The Government has embraced pollution control because it is a subject which is so popular and has wide support, and did need attention. Much research is underway now to find better and more efficient ways of treatment. People are demanding better, and no doubt they shall have it. Exotic approaches are being studied, including chemical treatment, reverse osmosis, nuclear treatment, reverse wells discharging waste into the ground, irrigation of land where no waste runs off, and many other methods.

These higher degrees of treatment are capable of producing water of drinking qualities. It could be made even purer than waters contained in natural streams during Indian times. The step from "primary" to "secondary" doubled costs. Present indications are that the step from "secondary" to "tertiary" could again double costs, which must be borne and the only solution seems to be to pass the cost to those who contaminate the clean water delivered to their homes. Water costs have doubled because of necessity of waste treatment and it seems inevitable that the future holds very substantial additional increases in water rates.

This is a national trend and does not concern just this community.

I feel that these facts should be known and understood by all our people because we must work our problems out over the next few years without creating the idea that Mobile is such a terrible place. It isn't. Mobile, Prichard, Chickasaw and Saraland have done a magnificent job.

New industry does without doubt shun areas whose Cities have not solved their pollution problems. We need to somehow correct the erroneous ideas about Mobile.

Our problem is well on the way to solution. Industry can come here and they are wanted. My concern is to get them here for the good of all our people.

Sincerely,

H. E. Myers

HEM/bdb

MOBILE AREA CHAMBER OF COMMERCE
P. O. BOX 2187 · MOBILE · ALABAMA 36601 · AREA 205 · [illegible]

December 13, 1968

Mr. F. J. Silva, Chief
Estuarine Studies
Federal Water Pollution Control Administration
Department of the Interior
Athens, Georgia

Dear Jim:

Per our telephone conversation this morning enclosed are copies of the three Chamber testimonies, including the chart used by Dr. Walters.

Good to talk to you and let us know if we can be of further assistance.

Cordially

Craig

Craig L. Mason, Manager
Industrial Relations & Research

CLM:sj

Enc:

ACCREDITED
CHAMBER OF COMMERCE
CHAMBER OF COMMERCE OF THE UNITED STATES

TESTIMONY TO BE PRESENTED BY THE MOBILE AREA CHAMBER OF COMMERCE AT FWPCA MEETING, NOVEMBER 21, 1968

Mr. Chairman:

I am Forrest Little. I appear as President of the Mobile Area Chamber of Commerce and am not a technical man nor expert in this field of estuaries or pollution. Some 30 or 40 interested committee members drafted this statement which was approved unanimously by our Board of Directors. If you have questions I shall be glad to pose them to our committees and will file written answers within the time allotted.

TESTIMONY TO BE PRESENTED BY THE MOBILE AREA CHAMBER OF COMMERCE AT FWPCA MEETING, NOVEMBER 21, 1968

The Mobile Area Chamber of Commerce is for pollution control as is every thinking American. We present testimony today for the purpose of assisting those who make decisions to distinguish the difference between what is idealistic and what is realistic in the aims and goals that are to be set. We strongly feel that there is a difference between idealistic control and realistic control.

The Mobile Area Chamber of Commerce is dedicated to continued economic growth and its benefits to the total community. Continued economic growth means more jobs, more money, more people and a higher standard of living for all Mobilians.

Stated in simplest form, the primary aim of the Mobile Area Chamber of Commerce is to assist in creating prosperity for the entire Mobile area.

It has long been recognized that the great need of this area is new jobs, for from them flows cash in form of wages, supplies, taxes, etcetera, which are necessary and essential to effectively run our local government, schools, hospitals, libraries, cultural projects and other worthwhile civic endeavors.

This effort for new jobs has been influenced by these principal factors:

1. Mobile is first and foremost a port, and always will be.
2. The millions of acres of trees surrounding the Mobile area.
3. The tremendous quantities of fresh water.
4. The underground wealth of mineral, salt, and oil.
5. The availability of good labor, both skilled and unskilled.

These five basic factors as a combination form the Mobile "personality". Many other cities, with whom Mobile competes, have one or more of these same attractions, but few have them all. The combination (not the individual items) is Mobile's uniqueness.

When pollution exists, it is usually caused by the activities and demands of people - people who drive cars, flush wastes down sewers, dispose of garbage and refuse, construct buildings and roads, transform materials and produce goods - even nature contributes. Consequently, all are involved, and all must bear responsibility.

We must not take the narrow definition of pollution that anything which is not absolutely pure is therefore polluted. Instead, there must be a practical consideration of the "degree" that will be acceptable, because if there are hundreds of thousands of people with all the jobs and industries needed to support them, there is bound to be some lessening in purity of water and air. Part of the purity simply must be selectively used.

However, the secondary aim of having an attractive place in which to enjoy the gains of new jobs is also very important, and every effort must be exerted to keep the degree of purity at as high a level as is practical. This practical level will not necessarily be the same with our cities with industry as with conservationists, and probably will always be somewhere between.

Therefore, the Mobile Area Chamber of Commerce

(1) Recognizes the importance of maintaining a good level of purity for both air and water and will lend assistance in maintaining it.

(2) Will continue to encourage and actively persuade all local municipalities to treat the domestic wastes to protect the health of the community.

(3) Will actively encourage new industry to observe a "good citizen" policy with respect to purity.

(4) Will talk with our established industry and work with them to do those things that are necessary to maintain reasonable and acceptable degrees of purity.

(5) Recognizes that new Federal laws require the State regulations to contain criteria which establish minimum standards and positive steps are being taken by industry to comply.

(6) Recognizes that immediate restrictive laws would be disruptive to the economy, and therefore, supports the policy of giving existing industry and municipalities necessary time to work out their problems.

(7) Believes that different geographies and different conditions demand different solutions and feels strongly that state

authorities must have the responsibility and authority for establishing criteria and standards for the environmental quality desired for their particular communities.

(8) Believes that the most beneficial role of the Federal Government in matters of environmental management is that of providing technical assistance and consultation.

(9) Points out that there are different ways of lowering purity of water, i.e., by untreated domestic wastes, by toxic materials, by lowering oxygen, by adding color, etcetera, and that there is a difference in the urgency to take corrective steps between the various types.

(10) Recognizes that the state of the art relative to pollution is in its infancy, and we encourage and support all possible technical progress in this field.

(11) Recognizes the potential emotional content in any discussion of purity of the water, the inevitability of the spread of rumor, and that in our attempts at resolution we will guard against indulging in the emotional, and that we will conscientiously attempt to work only on facts.

The objective of the Mobile Area Chamber of Commerce is an environment that will produce the greatest net benefit to our total community.

The above statements are vital to the Chamber's organization and every day working operation of developing a total community.

In conclusion:

(1) We are convinced that Alabama is well in advance of the neighboring states with respect to the abatement of pollution, particularly in the estuarien areas as is evidenced by the fact that the cities on the estuarian waters which have installed sewers are also giving the equivalent of secondary treatment to the domestic wastes,

and most industries on the estuarian waters are treating wastes, some to a very high degree. Those which are not now treating are under orders from AWIC to provide facilities equivalent to secondary treatment and have had an imposed time limit within which to accomplish construction.

(2) The changes in the state law as amended in 1965 are now showing dramatic results. Since all cities and industries are required to provide secondary treatment or its equivalent to their waste discharges, we believe that these new laws will accomplish a great deal in further abating pollution. Within these time limits of the law the cities and the industries should be able to work out the financial arrangements that are necessary for the accomplishment of the abatement.

(3) We are of the firm opinion that the new State law is adequate and should be given a fair chance to accomplish results before any other changes in law or composition of the regulating bodies be even considered.

(4) We think that the classifications adopted by the Alabama Water Improvement Commission for the estuarian waters in this area will result in a great overall improvement, and we recommend that they also be given a fair chance to work before any changes are even considered.

(5) We strongly recommend that all matters pertaining to these estuarian waters be administered by the State, and that the federal government be asked to serve only in the capacity of advisor and consultant.

(6) We are of the opinion that a comprehensive study and research of estuarian waters and ecology is needed, and suggest that the Federal government cooperate with the State agencies in making these studies.

The objective of the Mobile Area Chamber of Commerce is an environment that will produce the greatest net benefit for our total community. To create this, the total resources and talents of this community must be joined together. The community must unite in a partnership of concerned citizens, businessmen and public officials to utilize all necessary scientific, technical and legal talent needed in setting reasonable and adequate standards for maintaining an environment that will produce the greatest net benefit for all Mobilians.

TESTIMONY TO BE PRESENTED BY NEW INDUSTRY COMMITTEE, MOBILE AREA CHAMBER OF COMMERCE, AT FWPCA MEETING, NOVEMBER 21, 1968.

MR. CHAIRMAN:

MY NAME IS W. H. HOLLAND, VICE CHAIRMAN OF TASK FORCE 200. AS SPOKESMAN FOR THE NEW INDUSTRY COMMITTEE OF THE MOBILE AREA CHAMBER OF COMMERCE, I WISH TO TELL YOU OF SOME OF OUR WORK, WHAT WE ARE TRYING TO DO, AND ASK THAT YOU CONSIDER THE IMPORTANCE OF OUR WORK TO THE ECONOMIC WELL-BEING OF THE ENTIRE AREA. I ALSO WISH TO SHOW WHERE INDUSTRY FITS INTO THE OVERALL PICTURE OF ECONOMIC GROWTH AS IT RELATES TO WATER RESOURCE UTILIZATION.

OUR COMMITTEE EXECUTES A HIGHLY ORGANIZED ECONOMIC DEVELOPMENT PROGRAM FOR THE MOBILE RIVER BASIN AND ITS ENVIRONS. THE COMMITTEE CONSISTS OF MORE THAN 150 VOLUNTEER MEMBERS FROM THE BUSINESS AND PROFESSIONAL COMMUNITY --- MEMBERS WHO GIVE MOST GENEROUSLY OF THEIR TIME AND MONEY TOWARD THE DEVELOPMENT OF ECONOMIC GROWTH THAT MEANS MORE JOBS, MORE MONEY, AND A HIGHER STANDARD OF LIVING FOR ALL MOBILIANS.

THE DIRECTION OF OUR EFFORT HAS BEEN INFLUENCED BY THESE PRINCIPAL FACTORS:

1. MOBILE IS FIRST AND FOREMOST A PORT AND ALWAYS WILL BE.
2. THE MILLIONS OF ACRES OF TREES SURROUNDING THE MOBILE AREA.
3. THE TREMENDOUS QUANTITIES OF FRESH WATER.
4. THE UNDERGROUND WEALTH OF MINERALS, SALT AND OIL.

5. THE AVAILABILITY OF GOOD LABOR, BOTH SKILLED AND UNSKILLED.

THESE FIVE BASIC FACTORS TAKEN TOGETHER AS A COMBINATION FORM THE CORE OF OUR PARTICULAR AREA PERSONALITY. THIS COMBINATION IS WHAT WE SELL AND IT HAS HAD TREMENDOUS INFLUENCE ON THE BASIC TYPE OF INDUSTRIAL GROWTH WE HAVE ACHIEVED.

OUR PROSPERITY IS BUILT AROUND UTILIZING THESE ADVANTAGES THAT ARE OURS. WE MIGHT CONSIDER FOR A MOMENT THE CONSEQUENCE OF THEIR NON-USE.

WHAT GOOD A PORT WITH NO SHIPS, BARGES?

VAST FORESTS OF VIRGIN TIMBER ARE BEAUTIFUL TO BEHOLD AND ARE A SOURCE OF JOY, BUT UNLESS THEY ARE SELECTIVELY USED, THEY CREATE NO WEALTH.

BILLIONS OF GALLONS OF FRESH WATER MAY RUSH BY IN A RIVER, AND INSOFAR AS THE ECONOMIC WELFARE OF THE PEOPLE WHO INHABIT ITS BANKS IS CONCERNED, HAS LITTLE ECONOMIC VALUE UNLESS PART OF IT IS SELECTIVELY USED. A PRIME EXAMPLE IS THE AMAZON.

AND THE SAME IS OBVIOUSLY TRUE OF MINERALS AND LABOR.

OUR EFFORT ALSO HAS BEEN BASED ON THE BASIC PREMISE THAT MOBILE'S PROSPERITY DEPENDS ON THE ESTABLISHMENT OF NEW

INDUSTRY AND THE EXPANSION OF PRESENT INDUSTRY. OUR SUCCESS HAS BEEN MEASURED BY AN ACCUMULATION OF $340 MILLION IN NEW AND EXPANDED INDUSTRY SINCE THE PROGRAM'S INCEPTION IN THE SPRING OF 1965. RECENT ACCELERATION OF THIS ACTIVITY HAS BEEN SHOWN BY RECORD LEVELS OF $122.4 AND $122.5 MILLION IN THE RESPECTIVE YEARS OF 1966 AND 1967.

DIRECT JOB BENEFITS FROM THESE CAPITAL INVESTMENTS ARE SHOWN BY AN INCREASE IN MOBILE MANUFACTURING EMPLOYMENT OF 19% IN THE PAST FOUR YEARS. JOBS CREATED BY THESE CAPITAL DOLLARS ALSO ACCRUE OTHER BENEFITS TO THE ENTIRE COMMUNITY, INCLUDING THE WHOLESALE AND RETAIL ESTABLISHMENTS, PROFESSIONAL AND SPECIALIZED ACTIVITIES, AS WELL AS CITY, COUNTY AND STATE GOVERNMENTS THROUGH TAX REVENUES RECEIVED.

THE WATERS OF THE MOBILE AREA ARE VITAL TO MOBILE AND ITS BUSINESS AND INDUSTRIAL COMMUNITY. THESE BAYS, LAKES, RIVERS AND STREAMS PROVIDE AN ABUNDANT WATER SUPPLY FOR INDUSTRY AND SUPPORT A SIGNIFICANT SEAFOOD AND RECREATION ACTIVITY. ADEQUATE WATER AVAILABLE FOR PROCESSING AND TRANSPORTATION, IS ONE OF THE MAIN FACTORS CONTRIBUTING TO THE SUCCESS OF THE CHAMBER'S INDUSTRY HUNTING EFFORTS. FOR EXAMPLE, THERE ARE PRESENTLY MORE THAN TWENTY MAJOR INDUSTRIAL INSTALLATIONS DIRECTLY ON MOBILE BAY, THE MOBILE RIVER AND THEIR TRIBUTARIES, REPRESENTING A TOTAL CAPITAL INVESTMENT OF OVER 3/4 OF A BILLION DOLLARS AND PROVIDING MORE THAN 23,000 DIRECT JOBS.

SIGNIFICANT STEPS TOWARD WASTE TREATMENT HAVE BEEN TAKEN BY INDUSTRY, BOTH VOLUNTARILY AND UNDER FORCE OF AUTHORITY OF THE ALABAMA WATER IMPROVEMENT COMMISSION. THE ALABAMA STATUTE ESTABLISHING THE ALABAMA WATER IMPROVEMENT COMMISSION, AS AMENDED IN 1965, GAVE THIS REGULATORY BODY BROAD POWERS OVER ALL WATER-USING INDUSTRY, INCLUDING THAT FORMERLY EXEMPT UNDER THE SO-CALLED "GRANDFATHER CLAUSE". THE COMMISSION, REQUIRED BY THE LAW TO MEET ONLY TWICE EACH YEAR BUT ACTUALLY MEETING ALMOST MONTHLY, WE BELIEVE IS DEALING FIRMLY AND FAIRLY WITH ALL PERSONS UNDER ITS JURISDICTION. AS AN EXAMPLE OF THE EFFECTIVENESS OF THE LAW UNDER WHICH THE COMMISSION OPERATES, EVERY INDUSTRY LOCATED ON THE RIVERS AND THE BAY PREVIOUSLY MENTIONED THAT ARE DISCHARGING AN EFFLUENT ARE EITHER OPERATING UNDER A PERMIT REQUIRING SECONDARY TREATMENT OR HAVE SUBMITTED PLANS AS REQUIRED BY THE LAW FOR CONSTRUCTION AND OPERATION OF FACILITIES PROVIDING AT LEAST SECONDARY TREATMENT OR ITS EQUIVALENT. THIS WILL RESULT IN FURTHER ABATEMENT.

THE MOBILE AREA CHAMBER OF COMMERCE, NOTING THE PROGRESS TOWARD POLLUTION ABATEMENT BOTH IN THE MOBILE AREA AND THROUGHOUT THE STATE, FEELS THAT (1) THE PRESENT STATE LAW PROVIDES ADEQUATE AUTHORITY, (2) THE EXISTING MIX OF INTERESTS CONSTITUTING THE COMMISSION INSURES FAIR AND IMPARTIAL ENFORCEMENT, AND (3) THE TECHNICAL STAFF OF AWIC IS SUPERIOR TO MOST. WE SUGGEST THAT ANY RECOMMENDATION YOUR GROUP MAKES RECOGNIZES THAT THE AWIC ALREADY HAS ASSIGNED CLASSIFICATION TO THE WATERS OF THIS AREA (INCLUDING ESTUARINE) THAT WILL SUPPORT PRESENT AND FUTURE USES AND THAT FINAL

AUTHORITY FOR ENFORCEMENT SHOULD CONTINUE WITH THE ALABAMA WATER IMPROVEMENT COMMISSION.

WE ALSO RECOGNIZE THAT THE FEDERAL GOVERNMENT HAS A MEANINGFUL ROLE IN THESE MATTERS AND SUGGEST THAT YOU MAY BE OF GREAT ASSISTANCE TO THE VARIOUS STATES AND LOCALITIES BY PROVIDING THOSE RESOURCES FOR THE RESEARCH SO ESSENTIAL TO DEVELOP ADEQUATE TECHNOLOGY IN THE VARIOUS FIELDS OF POLLUTION.

WE SHALL CONTINUE TO ENCOURAGE ALL INVOLVED TO EFFECTIVELY USE OUR VALUABLE WATER RESOURCES FOR THE HIGHEST ECONOMIC, SOCIAL AND ESTHETIC BENEFIT OF THE ENTIRE COMMUNITY.

THIS IS GIVEN IN AN ATTEMPT TO SHOW THAT CONSIDERATION NEED BE GIVEN TO ALL FACETS OF OUR SOCIETY IN THE USE OF WATER.

Statement of Dr. James V. Walters, P. E.
Environmental Engineering Consultant to the
Mobile Area Chamber of Commerce
To the Federal Water Pollution Control Administration
November 21, 1968

Gentlemen:

I am James V. Walters, Professional Engineer. I speak today as the environmental engineering consultant to the Mobile Area Chamber of Commerce.

The aims of society, its governments, and its institutions are to aid or allow each individual to live his life as best he can. The primary goal of society then must be production, because we individuals cannot have and use the goods and services we need unless they are produced, delivered, and/or rendered.

Water resources, to be of value, must be used selectively and rationally. With our population and water use demands growing, we recognize the necessity of increasing application of the concept of balanced multiple use in the management of our waters.

My appreciation of the somewhat competitive beneficial uses of Alabama's estuarine waters causes me to rank them in order of decreasing value importance, and socio-economic impact as: public water supply, industrial water supply, navigation, recreation, and seafood production. Fortunately, demands for the competitive uses are often geographically separated.

It is evident that the estuaries of our nation are similar enough that we by usage have collected them under the name "estuary". Despite this convenient grouping, we must remember that each individual estuary has important unique attributes. Our Alabama estuaries are mostly shallows which normally experience minimal tides and maximal wind effects. During the earlier hearing at Biloxi, Mississippi, Dr. Walter Abbott referred to an important result of the various unique attributes of some specific estuaries. His discussion of hypereutrophication as effected by nutrient concentration and turbidity, as well as his other examples, highlight the generalization that because the particular estuaries do possess unique attributes it often is unwise to assume that operating characteristics and theories of operation developed during the study of estuaries in one location can be extrapolated for immediate use in the management of estuaries in other geographic locations. The difficulties attendant unto such extrapolations of theory and operation require that plans for estuary management allow for unique solutions for problems in individual estuaries.

To implement and augment such management programs, additional research and study of our estuaries will be necessary at the several levels of activity. A pertinent question of primary importance which can be answered only thru research in the various locales is whether the definition of "estuary" as determined by the Congress is satisfactorily correct and desirable. Research should allow us better means of assessment of the effects of pollutants which remain even after highly sophisticated treatment. A most important facet of the desired, improved assessment ability is that of being able to predict more precisely the margins of safety associable with each new proposal of a quantum of estuary management.

Research should hasten the use of electronic (and perhaps remote) sensing of water quality data and water translation phenomena to allow improved understanding, operation and control of estuarine functions. Local adoption of such techniques developed thru national research will make possible the collection of sufficient basic data to document the existing conditions of water quality in our estuaries.

As the last expectation of research which I shall mention, we critically need better methods and criteria for the monitoring of shellfish production. Additional Federal encouragement should be provided for scientists now working in the area of this problem.

Your invitations and announcements pertaining to the meeting here today included requests for statements concerning the best means and methods of estuarine management. Reason and socio-economic practicability are the paramount principles upon which our estuarine management must be based. Additional, acceptance of the principle of seeking the greatest good for the majority leads to the corollary that the best possible management is to be expected from the competent agency which is most closely located to and is most intimately involved with the problems of the estuary which is to be managed.

In some portions of the law under which this meeting has been called, estuary use management is spoken of as if it is a function yet awaiting initiation. Water resource management in these estuaries is an existing function, and must be considered to be such.

Under provisions of recent Alabama legislation and in cooperation with the Department of the Interior, the Alabama Water Improvement Commission has determined water quality standards for the management of our estuarine waters and other waters of the state. In addition, the waters of Alabama have been classified by AWIC to allow optimal utilization of these waters by the people of Alabama. The standards and classifications adopted by AWIC are supportable. They are reasonable. They are practicable.

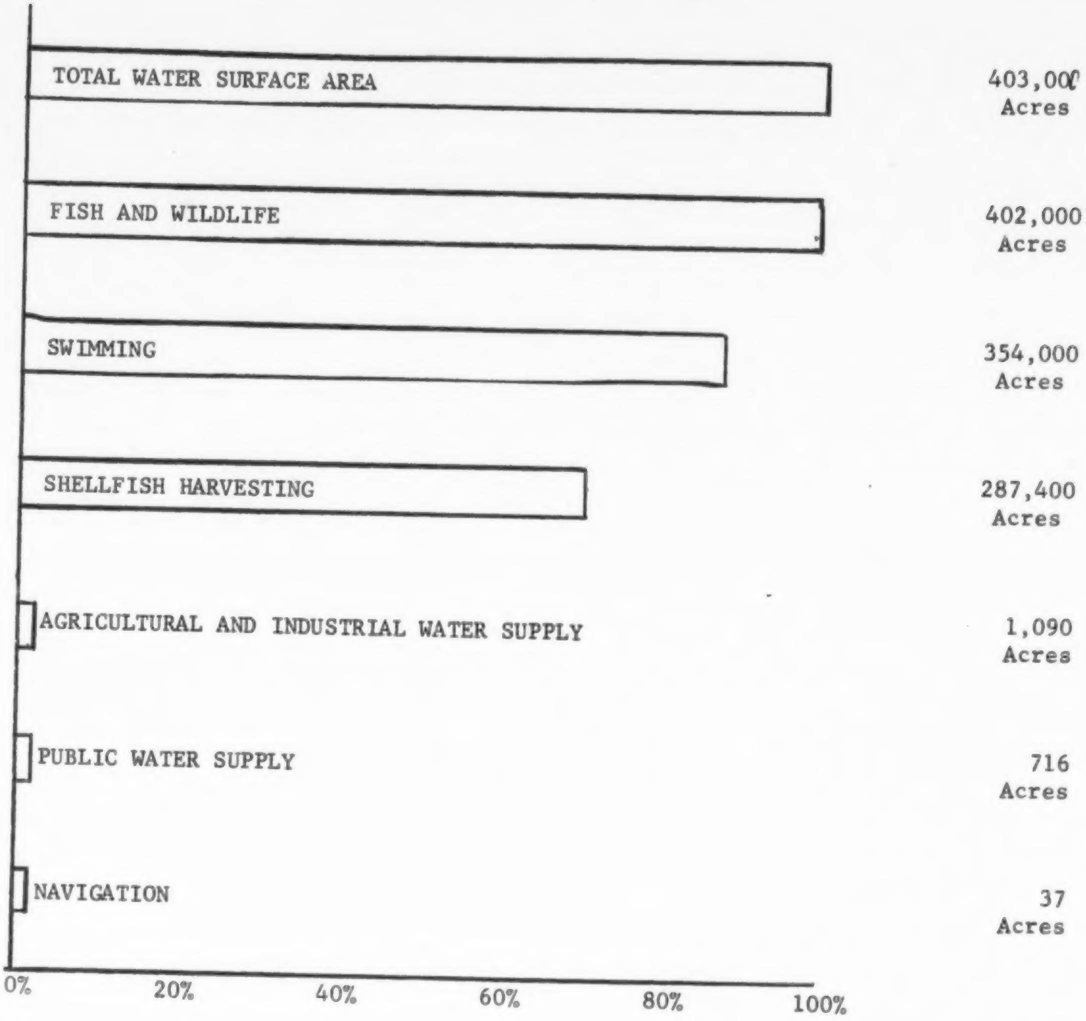
Figure 1 visually allows appreciation of the effect of AWIC classification of waters in the area near Mobile. The total water surface readily inventoriable in the area is 403,100 acres. That is about one acre of water surface for each person living in Mobile and Baldwin Counties. From that total, 402,000 acres have been reserved for uses which provide for the cultivation of fish and wildlife. That amounts to more than 14 acres for each sportsman who purchased a hunting and fishing license in Mobile County last year.

Uses which provide for swimming and other whole-body contact sports have been prescribed for 354,000 acres. That is more than 31 acres per registered Mobile County boat owner or slightly more than 3 acres for each boat registered in the state. Shellfish harvesting has been provided for in 287,400 acres.

By comparison of vastly different magnitudes, we see that only 1,090 acres have been restrictingly designated for agricultural and industrial water supply. Restriction for public water supply utilization was

Figure 1

CLASSIFIED SURFACE WATER AREAS



Areas Classified For "Best Usage of Waters" By AWIC Within the Mobile River Basin (AWIC Designation) and Portions of the Perdido River Basin in Alabama (AWIC Designation, As Contained on U.S.G.S. 15-Minute Quadrangle Sheets "Foley" and "Fort Barrancas") necessary for just 716 acres, and only 37 acres has been dedicated to the best use of navigation.

As an adjunct to this inventory I recently studied with staff members of AWIC and the State of Alabama Department of Conservation all those locations within the area covered by this inventory at which episodes of pollution not precipitated by hydrologic phenomena have occurred during approximately the last five years. The total area affected by these pollution episodes was only 2,442 acres; approximately six-tenths of one percent of the total surface area mentioned above. The inventory summarized in Figure 1 provides a new and quantitative perspective for our appreciation of water quality in the Mobile area.

Allusion was made above to the causative relationship of Federal law to stream classification by AWIC. While it can be correctly stated that the supportable standards and classifications adopted by AWIC are the direct result of Federal laws, it preeminently must be recognized that the results now seen to be taking place were already beginning to happen and would have been carried to comparable satisfactory conclusion under State law in the absence of the overriding Federal laws which came into existance primarily because of unsolved and/or unattacked pollution problems in other geographic areas.

Considerable pollution abatement progress is being made under our present system of water resources management. Additional time for continued operation is necessary to exhibit fully the fundamental value of the present system. The present system and personnel are worthy of our continued support and a full evaluative trial over a longer term before any changes of responsibility are proposed. Full responsibility for the management of our estuaries should continue to rest upon AWIC.

The Federal agencies similarly have continuing responsibilities. The present degree of public awareness of water pollution control problems is largely attributable to efforts of FWPCA and its sister agencies. Their responsibility for publicizing problems continues. A most helpful facet of such activities is to educate the public in the possible solutions of the problems and costs associable with each proposed alternative.

The Federal agencies should be encouraged to continue their research in estuarine phenomena and solutions to problems which can be generally extrapolable to a majority of the nation. The complementary function is to encourage and support local practitioners in education and research efforts as they center their activities upon the unique attributes of the local estuaries.

THANK YOU

News RELEASE

MOBILE AREA CHAMBER OF COMMERCE

P. O. BOX 2187 • MOBILE, ALABAMA 36601

DATE Nov. 21, 1968 TIME 11:00 a.m.

FOR IMMEDIATE RELEASE

OVER 400,000 ACRES OF WATER AVAILABLE FOR MOBILIANS

"The total water surface area in the area is 403,100 acres . . . about one acre of water for each person living in Mobile and Baldwin Counties," Dr. James V. Walters, P. E. Environmental Engineering Consultant to the Mobile Area Chamber of Commerce, told the Federal Water Pollution Control Administration, today.

The federal agency held a public meeting today at the Admiral Semmes Hotel to hear testimony on the development and management of the nation's coastal water areas. The meeting is one of several held in connection with the "National Estuarine Pollution Study".

Dr. Walters stated that of the total water area, 402,000 acres have been reserved for fish and wildlife uses. That amounts to more than 14 acres for each sportsman who purchased a hunting and fishing license in Mobile County last year.

Showing a large chart with the classifications of the waters in the Mobile area, Dr. Walters said that 354,000 acres were for swimming --- more than 31 acres for each registered boat owner in Mobile County.

Commenting on the use of our water, the specialist added, "Water resources, to be of value, must be used selectively and rationally. With our population and water demands growing, we recognize the necessity of increasing application of the concept of balanced multiple use in the management of our waters."

"Reason and socio-economic practicability are the paramount principles upon which our estuarine management must be based. Acceptance of the principle of seeking the greatest good for the majority leads to the corollary

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that the best possible management is to be expected from the competent agency which is most closely located to and is most intimately involved with the problems of the estuary to be managed."

Walters further pointed out that some portions of the law under which this hearing was being held considered management of the estuaries to still be awaiting action; however, management of these water areas is an existing fact and has been for several years.

Referring to recent area episodes of pollution, Walters stated, "I recently studied . . . all locations at which episodes have occurred during approximately the last five years. The total area affected by these pollution episodes was only 2,442 acres; approximately six-tenths of one percent of the total surface area mentioned above."

Walters closed by saying, "The federal agencies similarly have continuing responsibilities. The present degree of public awareness of water pollution control problems is largely attributable to efforts of FWPCA and its sister agencies. Their responsibility for publicizing problems continues. A most helpful facet of such activities is to educate the public in the possible solutions of the problems and costs associable with each proposed alternative."

"The federal agencies should be encouraged to continue their research in estuarine phenomena and solutions to problems which can be generally extrapolable to a majority of the nation. The complementary function is to encourage and support local practitioners in education and research efforts as they center their activities upon the unique attributes of the local estuaries."

News RELEASE

MOBILE AREA CHAMBER OF COMMERCE

P. O. BOX 2187 • MOBILE, ALABAMA 36601

DATE Nov. 21, 1968 TIME 11:00 a.m.

FOR IMMEDIATE RELEASE

CHAMBER FOR POLLUTION CONTROL

"The Mobile Area Chamber of Commerce is for pollution control, as is every thinking American." Forrest Little, President of the Mobile Chamber stated today in a meeting on development of the nation's estuaries. The public meeting is being held by the Federal Water Pollution Control Administration at the Admiral Semmes Hotel in connection with the Clean Water Restoration Act of 1966 as it applies to coastal areas.

Little said that, "We present testimony today for the purpose of assisting those who make decisions to distinguish the difference between what is idealistic and what is realistic in the aims and goals that are to be set. We strongly feel that there is a difference between idealistic control and realistic control."

The Chamber President reaffirmed the organization's goals of continued economic growth which produce more jobs, more money, more people and a higher standard of living for all Mobilians.

Little pointed out that 5 basic factors in combination form the advantage that Mobile has over other cities in competing for industry. These are that Mobile is, and always will be a port, has millions of acres of trees surrounding her, has tremendous quantities of fresh water, has an underground wealth of minerals, salt and oil, and has an available supply of good labor.

The Chamber position said pollution is usually caused by the activities and demands of people who drive cars, dispose of garbage, construct buildings and produce goods. Consequently, all people are involved and all must bear responsibility.

"We must not take the narrow definition of pollution that anything which is not absolutely pure is therefore polluted," Little said. "Instead

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there must be a practical consideration of the 'degree' that will be acceptable. If there are hundreds of thousands of people with all the jobs and industries needed to support them, there is bound to be some lessening in purity of water and air."

The testimoney gave several points vital to the Chamber's operation of developing a total community:

1. the importance of maintaining a good level of purity for air and water.
2. the encouragement and persuasion of all municipalities to treat waste.
3. the encouragement to new industry for purity.
4. the working with established industry to maintain acceptable purity.
5. the giving to industry and municipalities time to work out their problems.
6. the belief that different locations demand different solutions and, therefore, that state authorities must have responsibility and authority for setting standards.
7. the belief that the best role for the federal government is to provide technical assistance and consultation.
8. the awareness that no one knows enough about pollution and that much more research is needed.
9. the knowledge that the discussion of pollution is frequently emotional and the necessity for keeping objective and working only with facts.

Little closed by stating, "The objective of the Mobile Area Chamber of Commerce is an environment that will produce the greatest net benefit for our total community. To create this, the total resources and talents of this community must be joined together. The community must unite in a partnership of concerned citizens, businessmen and public officials to utilize all necessary scientific, technical and legal talent needed in setting reasonable and adequate standards for maintaining an environment that will produce the greatest net benefit for all Mobilians."

News
RELEASE

MOBILE AREA CHAMBER OF COMMERCE

P. O. BOX 2187 • MOBILE, ALABAMA 36601

DATE Nov. 21, 1968 TIME 10:00 a.m.
FOR IMMEDIATE RELEASE

CHAMBER NEW INDUSTRY SUCCESS DEPENDENT ON WATER

"The waters of the Mobile area are vital to Mobile and its business and industrial community", stated William H. Holland, Vice Chairman of the New Industry Committee, before a meeting being held at the Admiral Semmes Hotel by the Federal Pollution Control Administration on estuarine waters.

Mr. Holland further stated that, "These bays, lakes, rivers and streams provide an abundant water supply for industry and support a significant seafood and recreation activity. Adequate water available for processing and transportation is one of the main factors contributing to the success of the Chamber's industry hunting efforts."

The testimony pointed out that there are presently more than 20 major industrial installations directly on Mobile Bay, the Mobile River and their tributaries, representing a total capital investment of over 3/4 of a billion dollars and providing more than 23,000 direct jobs.

The New Industry Committee asked that the Administration consider the importance of their work to the economic well-being of the entire area, and consider where industry fits into the overall picture of economic growth as it relates to water resource utilization.

Holland stated that the New Industry Committee's Task Force 200 had been most successful with an accumulation of $340 million in new and expanded industry since the start of the program in 1965. And that recent acceleration of industrial activity has been shown by record levels of capital expenditures of more than $122 million in both 1966 and 1967. Direct job benefits from these investments have increased the Mobile area's manufacturing employment by 19% in the past four years.

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The Chamber noted the real progress that has been made toward pollution abatement both in the Mobile area and the State under the Alabama statue of 1965 establishing the Alabama Water Improvement Commission. The statement said that, "the present state law provides adequate authority, the existing mix of . . . the commission insures fair and impartial enforcement, and the technical staff of the AWIC is superior to most. We suggest that any recommendation your group makes recognizes that the AWIC already has assigned classification to the waters of this area (including estuarine) that will support present and future uses and that final authority for enforcement should continue with the Alabama Water Improvement Commission."

Mr. Holland closed by saying, "We also recognize that the Federal Government has a meaningful role in these matters and suggest that you may be of great assistance to the various states and localities by providing those resources for the research so essential to develop adequate technology in the various fields of pollution. We shall continue to encourage all involved to effectively use our valuable water resources for the highest economic, social and esthetic benefit of the entire community."

TELEPHONE: (205) 262-7319

Alabama
STATE CHAMBER OF COMMERCE

JAMES J. BRITTON
EXECUTIVE VICE PRESIDENT

468 SOUTH PERRY ... P. O. BOX 76
MONTGOMERY, ALA. 36101

November 27, 1968

Mr. John R. Thoman
Director, Southeast Division
Federal Water Pollution Control Administration
Suite 300
1421 Peachtree Street, N. E.
Atlanta, Georgia 30309

Dear Mr. Thoman:

In accordance with our communication last week with the Federal Water Pollution Control Administration hearing in Mobile, we are attaching a copy of the statement on behalf of the Alabama State Chamber of Commerce.

It will be appreciated if you would make this statement a part of your record.

With kindest regards and best wishes, I remain

Sincerely,

James J. Britton
JAMES J. BRITTON
Executive Vice President

JJB/cmb

Enclosure

STATEMENT OF THE ALABAMA STATE CHAMBER OF COMMERCE PRESENTED BEFORE THE FEDERAL WATER POLLUTION CONTROL ADMINISTRATION

NOVEMBER 21, 1968

The State of Alabama has experienced remarkable and outstanding industrial development during the last several years and the rate of this development is steadily gaining momentum. Figures for the period 1950 - 1967 illustrate this growth. During this 18 year span, industry invested a total of $4.3 billion of new capital in Alabama. This was exclusive of the vast amount spent for Government installations and spent by public utilities. Of this new capital, 85% or $3.7 billion, was spent by water-using industries. Thus, you see clearly the phenomenal industrial development taking place in this state and the very vital role of our water resources.

The estuarine water area of Alabama represents one of our most important economic resources. The seafood industry generates a multi-million dollar impact; water-using industries have millions of dollars invested in facilities and hire thousands of workers; recreational activities produce vast sums of tourist dollars.

We firmly agree that we must plan for future management of the water resources of our state. However, we believe water resources problems vary considerably from region to region of our nation, and the views of each region as to the methods of planning for and managing water resources are not alike.

We believe that there are no great differences between groups in our state regarding the objectives for water conservation, utilization and management. The differences that do exist and on which we continue to work together for the best possible solutions, are how to accomplish such objectives and determine the time schedule to be followed. However, many of the answers lie in the field of research and everyone needs to know a great deal more about water pollution problems. Certainly, this is true as we study the relatively new and unknown pollution problems in our estuarine areas.

We commend the dedicated efforts and progress of the Alabama Water Improvement Commission - our state agency which has determined water quality standards for Alabama, including our estuarine area. We believe this is as it should be, for the determination of satisfactory water quality standards must vary with local circumstances. Such determination is not a simple matter of reaching agreement of technical criteria, but involves complex value judgments as to the uses to which each body of water is to be put, and as to priorities among these uses.

We point with pride to the very substantial contribution in water pollution control facilities and research made by industries in Alabama and that these efforts have grown year by year. Also, federal agencies are making more funds available in the field of research. We look forward to the results of this research, for we believe this cooperative approach will more effectively improve pollution control and management practices of our estuarine waters.

United States Department of the Interior
Federal Water Pollution Control Administration
Washington, D. C.

Gentlemen:

This statement is submitted by me on behalf of the Alabama Wildlife Federation. The Alabama Wildlife Federation is the State affiliate of the National Wildlife Federation and represents the sportsmen and conservationists of Alabama. I am a director of the Federation and Vice-Chairman of the Alabama Wildlife Federation's Pollution Committee.

It is our understanding that for the purposes of this hearing the six assumptions contained on pages 5 and 6 of booklet entitled "National Estuarine Pollution Study" will be used. We will, therefore, not attempt to go into these matters in this statement.

The pre-hearing material which we received further indicated that the records of the hearings held in Bay Minette and Mobile in January of 1967, to establish Water Quality Standards, were on file and would be considered and, therefore, to avoid repetition should not be repeated. In this regard, you will note that extensive statements were made in January 1967 on behalf of the Alabama Wildlife Federation, Mobile County Wildlife and Conservation Association and numerous interested citizens and conservationists. Regretably, not one recommendation made by the Wildlife interest was accepted by the industry dominated and controlled Alabama Water Improvement Commission.

The remarks made here today are made with particular reference to the Mobile River Delta Estuarine area and Alabama waters, but probably would also apply to most any estuarine area in the United States.

As you know, pollution is the number one estuarine problem. To solve this problem, we must have strong anti-pollution laws and strong enforcement of these laws. In Alabama we have a weak anti-pollution law and weak enforcement of the law. Alabama has an industry dominated and controlled Water Improvement Commission. Eight of ten of the appointed members of the Board represent the polluters and not the people. "The inmates are running the asylum". Conservationists in Alabama have "no confidence" in this pollution control Board which is chairmaned by Dr. Ira L. Myers, State Health Officer, who has been appointed by the office of the Governor to coordinate Alabama interest in this study — the subject of today's meeting. I would like the record to show that Dr. Ira Myers personally led the fight against clean water for Alabama in 1965 when he opposed the Alabama Wildlife Federation's anti pollution bill.

Conservationists in conjunction with the Alabama Conservation Department are still fighting the adoption of the Water Quality Standards for Alabama submitted to the Federal Government by the Alabama Water Improvement Commission. As a result of this fight, approval of Alabama's standards has been withheld until Alabama adopts the "non-degradation clause". Also, the criteria for temperature and dissolved oxygen as set forth in the "Fish and Wildlife" classification and in the higher "Recreation" classification, have not been approved.

The Alabama Wildlife Federation supports you in your continued opposition to the dissolved oxygen and temperature criteria as submitted by the Water Improvement Commission. The Federal Water Pollution Control Administration will be wise to require the upgrading of these criteria to conform with the recommendations of the fisheries technicians of the State Department of Conservation. If this is done, they will also be conforming to the recommendations of the National Technical Advisory Committee which was established to advise the Federal Water Pollution Control Administration on criteria needed to protect our fish populations. This action is imperative if our fisheries resources are to be protected in those waters classified as "Fish and Wildlife".

Anything less than this will not result in adequate protection to our fisheries resources and, in my opinion, will not conform to to the intent of the Federal Water Pollution Control Act of 1965.

Since the January 1967 hearings we have had several fish kills in our Mobile area waters. Alabama has gone from 36th in the nation to 3rd in fish kills in the last few years. In excess of 3.5 million fish have died in fish kills this year in the Mobile area alone! Possibly Alabama - a relatively non-industrial State - will rank number one in the nation in fish kills in 1968. Why is this? Because, to repeat, the polluters control the Pollution Control Board in Alabama.

Alabama conservationists look hopefully to the Federal Water Pollution Control Administration and the 1965 Water Quality Act for relief. We hope we get action and not just more words.

There is a great need and demand for industrial development in Alabama. We have no desire to impede this industrial growth. We hope it will someday be realized. As recently stated in the magazine of the National Wildlife Federation:

> "Conservationists are not blindly against progress
> but they are against blind progress."

Obviously we have failed to educate the public as to the great value of our seemingly worthless marsh. If we are to get the public support which will be needed to preserve our estuarine and stop pollution, we must put top priority on convincing the public we can't afford to lose these estuarine areas.

Proper planning and/or zoning are a "must", if we are to have pollution control. We would not dream of installing a factory in a prime residential area. Yet we do not hesitate to put a factory in an invaluable marsh which cannot be replaced. There are many places where new factories and water using industries can be located where it will be possible to install complete and adequate treatment facilities and at the same time not destroy our estuarine areas.

Oftentimes too many plants are placed in one small area of one stream, viz, Chickasabogue Creek here in Mobile where the huge Scott Paper Company and International Paper Company plants are located a short distance from each other on the same stream. This must be avoided in the future.

Location of pollution control facilities must also be planned. Sometimes sewerage treatment plants are located in areas and on streams where they cause more pollution than they solve. For instance, one of our Mobile sewerage treatment plants which was constructed some years ago on Eslava Creek has itself been the cause of enumerable fish kills. Farsighted and competent planning would have prevented its location in a highly desirable recreational area.

Planning for pollution control must be on a regional and national basis, as well as state basis, if our estuarine areas are to be protected. For instance, the water which drains into the Mobile Delta comes from many states and long distances. It is not reasonable to expect that our estaurine can be kept clean if Mobile cleans up. We must be assured that all waste dumped into all streams which eventually flow into Mobile Bay receives the highest and best treatment possible.

Oil pollution is much in the news and particular attention should be given to it. Again strong laws and strong enforcement must insure that any off-shore exploration and drilling for oil and any which might take place in the Mobile Delta area or Gulf will be allowed only under the strictest supervision to insure no oil spills will take place. Ships and barge traffic into port must be closely supervised. Docks where oil is loaded and unloaded should be regularly inspected and strictly controlled. Barges transporting oil should be strictly regulated. The development of the Theodore Ammunition Depot Industrial Complex on Mobile Bay is presently under way. Numerous incidents of oil spills in loading and unloading oil for the refinery in this area have already taken place. This must be stopped! Effective ways of preventing repetition of these incidents must be found.

Encroachment of the estuarine area must be stopped! A line must be drawn! The enormity of this encroachment can be seen only when you compare one year's encroachment with the previous year and so on. Zoning to insure that estaurine areas will be maintained in their natural state is one possibility. Acquisition of easements such as "Scenic Easements" so as to draw a line around our Delta areas to keep out possible future encroachment is another. This would probably require condemnation and compensation to the landowners. Under the present tax structure the individual states - such as Alabama - could not afford this. But if the estaurine areas are half as valuable as we are told, then we must find a way. Federal matching funds such as used in the highway programs are a possible solution. Being a national asset, the cost of this should be borne by citizens throughout the nation.

Dredge spoil is an acute problem in the Mobile Delta. The River and Harbor Act of 1954 which authorized the deepening of the Mobile Ship Channel and Harbor, stipulated that both new work and maintenance dredging spoil was to be deposited on areas furnished by local interest. Local and State officials faced with the necessity of maintaining and improving the ship channel, which is absolutely necessary to the economic life and survival of our community, and not having funds available to transport this spoil any great distance, cast around for a cheap convenient close spot. Polecat Bay, our Western most Delta Bay and one of our largest, was chosen. This Bay more or less parallels the harbor. In 1963 the State, through the State Docks Department, signed a 25 year agreement with the U. S. Engineers to deposit spoil on Blakely Island adjacent to Polecat Bay. Spoil started flowing into the Bay as a result of the joint action of the Federal Government acting through the U. S. Engineers and the State. Today spoil again is running into the Bay, although this time the U. S. Engineers did require a dike to be constructed around the Bay. This dike has broken in several places and the spoil continues to go into the Bay.

THE RUINATION OF THIS BAY STANDS AS A CLASSIC EXAMPLE OF THE IGNORANCE OF MAN AND THE WANTON DESTRUCTION OF OUR IRREPLACEABLE NATURAL RESOURCES IN THE NAME OF PROGRESS. I invite -- indeed I challenge - you to personally inspect this classic example of environmental mismanagement while you are here in Mobile. The spoil is filling the Bay while we talk. The bitter pill in this tragic story is that under the decision of our Alabama Supreme Court the adjoining property owners will become the owners of this filled in Bay - the bottom of which formerly (while it was a Bay) belonged to the State of Alabama. See State v. Gill, 66 So.2d 141. Public land will be diverted to private profit.

Enclosed as Exhibit 1 is a copy of my letter written during my term as President of the Mobile County Wildlife and Conservation Association to the then Attorney General of Alabama, requesting action. Needless to say, none was taken. Attached as Exhibit 2 is a memo on Polecat Bay prepared sometime ago by the Alabama Conservation Department. See also statement by Walter Beshears given at the January 19, 1967, Mobile Hearing. Attached as Exhibit 3 is Water Quality Study of Polecat Bay by the Alabama Department of Conservation, Seafood Division, dated March 3, 1966.

Dredge spoil in the open Bay is also a problem. The practice is just to dump it along the existing channel. This must be stopped. A better way to dispose of spoil must be found. It either must be taken to the Gulf and dumped (which the State can't afford because of the tremendous cost) or disposed of in a way to enhance the Bay's recreational value and benefit its wildlife. The Mobile County Wildlife and Conservation Association today has presented for your consideration one possibility. One thing for sure, we can't just keep dredging and dumping like we have in the past.

Another problem is presented by the Oyster Dredging operation which has been going on for some years in Mobile Bay. The operators claim they take no live oysters and this is probably correct. I understand an application to extend this permit is presently pending before the U. S. Engineers. This application should be closely reviewed by you as well as the U. S. Engineers before it is extended.

I am not suggesting that this operation should or should not be allowed. What I am saying is that the effect of this shell dredging operation on the basic ecology of Mobile Bay should be carefully investigated. The effect of the silting it causes, if any, on oyster production and duck vegetation in the Bay should also be studied. Walter Beshears in his report to the Technical Section, Mississippi Flyway Council held in Mobile in March of 1966, reported at page 10:

> "There is no mudshell or mineral industry in the Delta above the Causeway. However, exploration for oil and gas have been made, and are being made at the present time. Shell dredges are encroaching closer and closer to the Causeway in the open bays to the south. They are now within the three mile limit, and are beginning to destroy the outer reaches of vegetative growth." (See Exhibit 4).

"Suicide in the Shallows", an article in the June-July 1968 issue of the National Wildlife Federation reports on the concern oyster dredging is causing throughout the country, the subject article spotlighting oyster dredging operations in Galveston Bay. If the similar operation in Mobile Bay is adversely affecting the ecology of Mobile Bay, it should be stopped. If not, it should be allowed.

Any investigation should be made by an independent agency such as yours. The Seafood Division of the Alabama Department of Conservation should not be the agency which conducts this investigation, since it shares in the proceeds of this oyster dredging operation.

There are many more estuarine problems which cannot be discussed within todays time limit, but to summarize, if we are to keep our estuarine we must:

1. Stop pollution and clean up our water, nationally as well as locally. This can be done only through strong pollution laws, strongly enforced;

2. Encroachment must be stopped by zoning, acquisition of scenic easements or estuarine easements, or other eminent domain proceedings.

3. Dredging and spoil disposal - public and private - must be strictly regulated and controlled so as to insure the preservation of the estuarine.

4. No practice which will adversely affect the ecology of the estuarine should be allowed.

Gentlemen, I wish to thank you for the opportunity of appearing before you today. We in the conservation movement appreciate your kind attention. I hope our presentation will be of some help to you and if we can be of any further assistance to you, please do not hesitate to call on us.

Respectfully submitted,

ALABAMA WILDLIFE FEDERATION

Benjamin H. Kilborn

BENJAMIN H. KILBORN
VICE-CHAIRMAN, POLLUTION COMMITTEE

PETITION OF THREE MILE CREEK IMPROVEMENT ASSOCIATION

November 20, 1968

To: Honorable Leroy Stevens, Commissioner
Honorable Will D. Haas, Commissioner
Honorable Aldon L. Smith, Commissioner
County of Mobile
Mobile, Alabama 36601

To: Honorable Lambert C. Mims, Mayor, Public Works Commissioner
Honorable Arthur R. Outlaw, Public Safety Commissioner
Honorable Joseph N. Langan, Finance Commissioner
City of Mobile
Mobile, Alabama 36601

WHEREAS, the undersigned citizens and residents of the City and the County of Mobile, who have designated themselves as the Three Mile Creek Improvement Association, and whose signatures are affixed to this petition, and others, are interested in the improvement of Three Mile Creek which lies in the City and County of Mobile; and

WHEREAS, they appreciate the consideration given and the action taken under the orders of the Board of Commissioners of the City of Mobile and particularly under the orders of the Public Works Commissioner, to reduce the menace which this stream presents, evidenced recently by the letter of Honorable Lambert C. Mims, dated July 24, 1968, to Reverend Jack R. Shearer; and

WHEREAS, the Three Mile Creek is an important drainage artery, but presents, because of its insufficient capacity, an ever-present menace and threats of serious and far-reaching proportions, not only in the proximity of the Creek but in a large portion of the City, among which include damage to valuable adjacent private property and material depreciation of value of such property, to the safety and even lives of the people, and continues to cause much loss of time and peace of mind; and

WHEREAS, the undersigned realize that eliminating the danger from flooding may present major considerations because it is impossible to tell the amount and frequency of rainfall which might occur, and the amount of water caused by high tides due to the proximity of the Gulf, and the undersigned are also aware that a rising or stationary high tide in Mobile River has an adverse effect on the flow of water in the lower reaches of Three Mile Creek, but the undersigned also realize that the flow of water in the Creek can be facilitated and the menace of the flooding can be reduced by accomplishment of the improvements and maintenance practices herein petitioned; and

WHEREAS, with more than 25 square miles of watershed of Three Mile Creek, many factors over the years have contributed to the overloading of the drainage capacity, including, but not limited to, the large amount of urban development; land improvement; conversion of land from its primitive state to parks and other facilities which do not readily absorb rainfall; various types of construction; the filling in of low swampy areas (which in the past provided "surge tank" type of water storage); drainage of additional areas; lowering of existing water limits in upper reaches; and diverting waters to the stream without correspondingly increasing the capacity; and

WHEREAS, according to studies conducted by the U.S. Geological Survey in other localities (USGS Water Supply Paper 1591-B) urban development alone has increased the quantity of water to be disposed of by 44%; and

WHEREAS, a considerable portion of Trinity Gardens is located in the City of Prichard and the distance from the center of Trinity Gardens to Toulmin's Spring Branch is approximately an equal distance to Three Mile Creek near the GM&O railroad track, and the drainage distance from Trinity Gardens to Toulmin's Spring Branch to its mouth is approximately three miles less than Three Mile Creek to the same spot in the lower reaches of Three Mile Creek above Conception Street Road;

NOW, THEREFORE, the undersigned vehemently and positively protest the drainage of the Trinity Gardens area into Three Mile Creek at any location up-stream from Stone Street and urge the governing body of the City of Mobile to take immediate steps to resolve this situation in collaboration with the City of Prichard with the assistance of the County of Mobile if such is required.

The undersigned do hereby further urge the Boards of Commissioners of the County and the City of Mobile to take all such steps as may be necessary until the flooding of Three Mile Creek is solved and that, pending such solution, that immediate steps be taken, using City and County equipment and City and County employees, as applicable, to perform the following work on Three Mile Creek:

1. Remove from the stream and its banks all debris and underbrush, overhanging trees to permit free flow of water. There are obstructions under the Stone Street and Stanton Road bridges which should be removed.

2. Provide cutoffs, ease bends, change location of stream beds, divert drainage water to other outlets, to facilitate a more rapid and unimpeded run-off of flood waters, where and when deemed desirable by the City Engineer and the County Engineer as applicable.

3. Enlarge Three Mile Creek to at least the dimensions shown in each of the following stretches of the waterway:

a. From mouth of Creek at Mobile River to Stone Street:
12' deep at mean low water with a bottom width of 80'.

b. From Stone Street to Stanton Road:
From 12' deep (MLW) at Stone Street to a depth of 6' below present elevation of stream bottom adjacent to and east of Stanton Road bridge, over a bottom width of 60'.

c. From Stanton Road to near Yerby Street:
From a depth of 6' below present elevation of stream bottom at Stanton Road to the present bottom level at the up-stream limit of the stream widening over a bottom width of 60'.

d. Clear at least a 20' wide strip along each bank and place all spoils beyond this area in, where practicable, ridge like mounds. Avoid the raising of the elevation of any of the present banks.

4. Work should be started at the downstream locations and progress upstream. In this manner of accomplishment, benefits will immediately be realized in the upper stretches because the more rapid run off capacity provides space for upstream waters to move into. This advantage increases progressively as the work moves upstream.

5. Establish and fix responsibility for the execution of an efficient system of periodic inspections at such frequency as deemed advisable by the City Engineer and the County Engineer as applicable.

6. Designate a work crew and properly equip them to police at reasonable intervals and to remove objects deposited in the Creek, brush, overhanging trees, aquatic growth as it accumulates.

7. To enforce, with the use of the Police Department, the ordinance prohibiting the disposal of or deposit of any garbage, paper, cardboard, trash, or any offensive or noxious substance in any part of the stream in the City of Mobile and enforce similar action in the County.

8. Require an inspection from inside of the entire Creek and tributaries to locate any outfalls of storm or sanitary sewers or other sources which might discharge sewage or other pollution into the Creek and require corrective action.

9. Enact laws to prevent works in and/or adjacent to the waterway or elsewhere which might have a deleterious effect on the free flow of water downstream in the waterway. Permits for any such works should be issued by the City of Mobile or the County as applicable, only after an on the spot investigation by either the City Engineer or the County Engineer or both as concerned and an endorsement on such permit to the effect that the proposed construction or other work will not adversely affect the drainage capacity of the waterway.

10. Impound and/or divert flood waters of Three Mile Creek west of the Belt Line Highway (none of which would reduce the fair weather flow of water in the stream) after a survey of each and an overall study to determine how the greatest drainage benefits could be attained, and the most feasible course of action could be identified. Among the considerations include impounding of water for future industrial use, spillway to reduce amount of water in Creek in a time of flooding.

Respectfully submitted,

NAME	ADDRESS
[illegible]	2262 Du Broca
[illegible]	2254 Du Broca
Helen D. Johnston	2258 Dubroca
Evelyn B. McNeil	2256 Du Broca St
Gary E. Haynes	2200 Toulouse Dr.
Bea Crane	2260 Du Broca St
[illegible]	[illegible]

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Victor A Gonzalez	309 Indian Creek Dr. West 36606
M. W. Strauch	1810 N. Indian Creek
Dr. + Mrs. R. O. Harris III	1802 N Indian Creek Dr
(Mrs) Louise Smith Wadsworth	2266 No Levert Dr 36607
Mrs. Charles Morris	2270 No. Levert Dr 36607
Mr. Charles Morris	2270 No Levert Dr 36607
Mr + Mrs. Wm C Regan Sr	300 Levert St
C. L. Witham	303 Levert St
Mrs C. L. Witham	303 Levert St.
J W McCrow	(2266 No Levert Dr
Mrs J W McCrow	owner)
Mrs. Wm. S. Piper	305 Levert
Mr. Wm. S. Piper	305 Levert
Mrs R. W. Goldsby	307 Levert St
Mr. R. W. Goldsby	307 Levert St.
Mr + Mrs C. B. Woodson	2262 Levert Dr.
Mr + Mrs. J. M. Gonzalez	2251 N Levert Dr.
Leveneil Brown	2207 N. Levert Dr
Josephine Botts	2207 N. Levert Dr.
Patrick D. Sanders	2205 N. Levert
Mrs Chas M. Walsh III	2201 No. Levert
Mrs J. E. McMurphy Jr	2013 N Levert Dr.
Mrs S. Macy Johnson Jr.	2003 N. Levert Dr.
S. Macey Johnson Jr.	2003 N. Levert Dr.
Dr. C E Rouse	2011 No Levert Dr
Mr. Clyde Rouse	" " " "
Joe L Busch	2017 N. Levert Dr
Jeanette S Busch	" " "
Mr + Mrs Geo H Walpole	2258 N Levert Dr
Mrs. Irwin W. Coleman	22[illegible] Levert Dr
Mrs M. R. Mitchell	22[illegible] Levert Dr

Total 35 [illegible]

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(Mrs) Ruth G. D'Olive	2259 N. Levert Dr
Irving Kahn	2257 N. Levert Dr.
Rebecca Kahn	2257 N. Levert Drive
Alfred P. Jumps	2255 N. LEVERT DR.
Meredith B. Jumps	2255 N. LEVERT DR
Charles L. Rehm Jr	2261 N Levert Dr.
Grace N. Rehm	2261 N. Levert Dr.
Mrs. F. H. Henderson	2265 N. Levert Dr
Joseph C. Sullivan	2267 N. Levert Dr.
Ruth J. Sullivan	2267 N. Levert Dr.
Mary B. Howze	306 Levert
H C Regan Jr	300 Levert St
W R Stefan Jr	2264 DuBrock St
T. O. Howze Jr	308 Levert St.
Wilbert Reid	246 Walshwood Ave
Green Lee Jr	2268 N. Levert Dr
George L Wilson	2205 Toulouse Dr
Rebecca B. Fountain	208 Walshwood Ave.
Elsie B. Sears	204 Walshwood Ave
Mrs. John Bonneau	2264 N. Levert Dr.
Mr + Mrs W. W. Borden	2217 Toulouse Dr.
Mr + Mrs. William M. Fuchs	1822 N. Indian Creek Dr.
Mrs C. E. Lange	1821 N. Indian Creek Dr.
Mrs V. F. Crabtree	261 W Indian Creek
Mrs D. Langan	2324 N. Lowndes Circle
Owen E. McDonnell	2263 Toulouse Dr.
Mrs Owen E. McDonnell	2263 Toulouse Dr.
R. L. Reichert	2221 Toulouse Dr
Jack R Shearer	2109 Lake Dr
John J Bonneau	2264 N. Levert Dr.

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Respectfully submitted,

NAME	ADDRESS
J R Goodloe	1814 Indian Cr Dr
Mrs T J Beherle	1810 Indian Creek Dr So
Mr. Irving Ripps	1806 S. Indian Creek Dr.
Mrs. Allan Woodruff	1802 S. Indian Creek Dr.
J P Marshall	1800 Indian Creek Dr S.
Mrs S P. Marshall	"
Mrs Maurice G Gleason	1805 Oak Knoll Dr.
Mrs [illegible]	256 Indian Cr Dr
Mrs. Arthur Gonzales	1817 Oak Knoll Dr.
Tonia Gonzales	1817 Oak Knoll Dr.
Arthur S. Gonzales	1817 Oak Knoll Dr
John C Kelly	1818 N. Indian Creek Dr
Mrs John C. Kelly	1818 N. Indian Creek Dr.
Billie B Thompson	1874 Pleasant Ave
Mrs H. L. Gholson	5512 Vienna Dr
Mrs Raymond Noye	Rotary Center
Susanne Nance	1874 Pleasant Ave.
Rachel A. Berger	508 Spring Park Dr E.
Richard J. Lovell	29 Lancaster Rd
Billy A. Deakle	1874 Pleasant Ave
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Sheldon R Moore	1961 Antoine St.
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Michael D Acierno	8 North Lafayette - Apt. 11
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Roberta Miller	125 N. Ann St.
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W F Hanlein	224 Walshwood
Mary C Sullivan	228 Walshwood
Daniel F Sullivan 3rd	228 Walshwood
Lea M Hackmeyer	232 Walshwood
F. W. Hackmeyer	232 Walshwood
Frederick H DeVane M.D.	221 Walshwood Ave
Jean H. DeVane	221 Walshwood
Julie Tunstall	219 Walshwood
Milton Klein Jr.	217 WALSHWOOD
Ilse G. Klein	217 Walshwood
Herman S Gregg	215 Walshwood
J. H. Schoenfeld	220 Walshwood
Margaret P. Schoenfeld	"
Mrs. Guy Janke, Jr.	235 Walshwood
Rebecca P. Fountain 3-	208 Walshwood Ave
Elsie B. Sears	204 Walshwood
Jane P. Kay	1915 Oak Knoll Dr.
[illegible] Harrison	738 [illegible]
Verna Lee Havens	8 Graf Ct
Judy Stupp	1274 Peabody Ave
[illegible]	4068 Old Shell
Linda Albert	2766 [illegible]
Linda Winstead	556 Marcus Dr.
Mary H. Gutierrez	367 Hillwood Cir
Jacob Schultz	3852 Rue Maison
Philip Magnus	3852 Rue Maison

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NAME	ADDRESS Phone No. 473-4864
Wilbur Skipper	752 Canal Dr Mobile, ala.
Mrs Mozell Skipper	Phone No. 473-4864. 752 Canal Dr Mobile, ala.
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Mrs W. C. Pearson	755 Canal Drive ala. 478-1712
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L.C. McCarter	2959 Northwest Dr.
Mrs [illegible] Brannon	2962 Northwest Drive
[illegible] Brannon	2962 Northwest Drive
J.W. Fables	2954 Canal Dr. 479-4031
Bernice Fables	2954 Canal Dr. 479-4031
Mrs. Betty L. Dannenberg	2952 North Western Drive 473-4780
[illegible]	2950 North western DR
[illegible] M. Pugh	2951 Canal Dr. 4716672
[illegible] Pugh	20 → Mr & Mrs W. T. Phillips
Donald Lewis	2956 N. Western Dr
Winnie Mae Lewis	2956 N. Western Dr
Marion P Edge 758 Canal Dr	21 Mrs Claudie Davis 2960 N. West Dr. 479-8902
3- Mrs. O. C. Wilson	757 Canal Dr. 473-8[illegible]
Clyde [illegible]son	751 Canal Dr. 473-82[illegible]
Mrs J. Phelps	308 Briarwood Drive
Mrs T.S. Brown	1406 Brown St.
Mrs J W Tillman	4152 Winchester Dr
Mrs. F. E. Seiller	7 Country Club Rd
Mrs. Royce H. [illegible]	2206 Lousant Dr.
Mrs Rosie B Smith	1454 Norco Rd
Mrs. Arthur Miller	2205 Lousant Drive
Mrs Leon Stern	338 Bromley Place
Leon Stern	338 Bromley Place
ARthuR MilleR	2205 Lousant Drive
Mr & Mrs. J. K. McBroom	108 Silverwood

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NAME	ADDRESS
[illegible]	715 LOEFFLER ST.
[illegible] Brown	715 LOEFFLER ST
Robert G. Forsythe	715 Loeffler Street
D. W. Mosley	715 LOEFFLER ST.
Andrea L. Page	715 Loeffler St.
Margaret M. Gibson	715 Loeffler Ste
Arthur W. Nichols	715 Loeffler St.
[illegible]	715 Loeffler St.
[illegible] G. Falk	715 Loeffler St
Carolyn G. Brown	715 Loeffler St.
Laura W. Harris	715 Loeffler St
[illegible]	2802 Cotton St.
Mrs. Sears Lee, Jr.	2268 N. Lenert Dr.
Geo T. Landry	2261 De Broca St
Louise L Landry	2261 DeBroca St.
E K Cantey Jr	360 West Street Battery Heights
Paul M. Goldfarb, MD	254 E. Indian Cr. Dr.
Jack O Yeager MD	1807 Indian Cr. Dr.
Lillian M. Yeager	1807 Indian Creek Dr.
Fred E. Harford	1805 So Indian Creek Dr.
Alice S. Harford	1805 So. Indian Cr. Dr.
Mr. & Mrs. Arthur Heinrich	1803 S. Indian Creek Dr.
Dr + Mrs Louis Raider	1801 South Indian Creek Drive
Mr and Mrs Luther Davis Jr	253 E. Indian Creek Dr.
~~Mr + Mrs [illegible]~~	~~250 E Indian Creek Dr~~
Mr + Mrs Paul Brown	1809 Oak Knoll Drive
James C Barrett	1811 N. Indian Creek Dr.
Mrs James C Barrett	1811 Indian Creek Dr.

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NAME	ADDRESS
Pearlie G. Folks	1822 N. Indian Creek Dr.
Wm M Turner Jr	308 Oak Knoll Cir.
Yvonne W Turner	308 Oak Knoll Cir.
D. M. Mullins M.D.	1826 N. Indian Creek Dr.
Marilyn M. Mullins	1826 N. Indian Creek Dr.
Marguerite S. Hardesty	301 W. Indian Creek Dr. 17
M. N. Hardesty	301 W. Indian Creek Dr. 17
Alisina D. Ollinger	121 Pinebrook West
Mrs H. C. Smith	305 Indian Creek dr
Paul Brock	1907 Oak Knoll Circle
Louise Brock	1907 Oak Knoll Circle
Gary Harless	1908 Oak Knoll Ci
Marion Harless	1908 Oak Knoll Cr
Beverly H. [illegible]	1913 Oak Knoll Circ
George H. [illegible]	" "
Patricia B. Haas	1904 Oak Knoll Circle
Albert G. Haas	" "
Charlotte Lang	3- 300 Oak Knoll Circle
Douglas Lang Jr	300 Oak Knoll Circle
Mary Knox Middleton	1903 Oak Knoll Dr. 8
Theo F. Middleton MD	1903 Oak Knoll Dr
Gwendolyn Metzger	1911 Oak Knoll Dr.
Leonard H. Metzger Jr	1911 Oak Knoll Ci.
Lucille B. White	1904 Oak Knoll Dr.
Felix R. White	1904 Oak Knoll Dr.
C. E. Fontaine	1910 Oak Knoll Circle
May F. Fontaine	1910 Oak Knoll Circle

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Mrs. Ralph H. [illegible]	1874 Pleasant Avenue	
Danny Wright	1874 Pleasant ave.	73
Mrs. S. Kitzer	2850 Ester Dr.	29
Mr. S. Kitzer	2850 Ester Dr.	
Miss J. Kitzer	211 Childree Drive	
Mr. + Mrs. B. Dittman	1818 S. Indian Creek Dr.	
Mr. + Mrs. E. Zivitz	305 Oak Knoll Circle	
Sgt. Paldman	111 BEVERLY CT.	
[illegible]	1874 Pleasant Avenue	
Richard J. Grace	304 Oak Knoll Circle	
Naomi Thompson	351 Azalea Rd.	
Russell Graham	2652 [illegible] Ct.	
Betty Moffett	1756 St Road Apt. A.	
[illegible]	300 Indian Creek, N.	
Mrs. Anna Ruth Bailey	516 Patton Avenue	
Mrs. Luthie Hill Tate	1174 Pleasant Ave	
Mrs. Elizabeth M. Fielder 3-	333 S. Jefferson St	
David E. Caskill	200 E. Borden Dr.	
Annie L. Tracy	1117 Old Shell Rd.	
Phyllis B. Fleischman	54 Silverwood	
Frances K. Cook	1912 Oak Knoll Dr	
Mrs. W V McRaney	1900 Oak Knoll Dr	
Ruth Brinkmann	1817 S Indian Creek Dr	
Margaret Sue Oswalt	1819 Indian Creek Dr.	
Jessie L. Clark	255 W. Indian Creek Dr.	
Catherine C. Thurber	259 W. Indian Creek Dr	
Mrs. W. P. Clark	255 W. Indian Creek Dr.	
Lucy C. Orozco	1819 Indian Cr. Dr.	
Lawrence E. Titterman M.D.	237 Seminole Circle	

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NAME	ADDRESS
Dorothy Champlin	308 INDIAN CREEK DR. WEST.
Marilyn Champlin	308 Indian Creek Dr. W.
Forrest Crabtree	261 W. Indian Ck.
Mrs Anne Hardenbergh	" " "
Mr. & Mrs. Edwin V. Taylor	1800 Indian Creek Dri. N
Dr & Mrs Amos O Pilgrim	1806 Indian Creek Dr N
Mr + Mrs Frank Lindsey Sr.	1801 Indian Creek Dr - N
Col & Mrs S.V. Matthews	1805 Indian Creek Dr. - N
Mr & Mrs Barton Green Jr.	1801 Oak Knoll Dr.
Mrs. John Hope, jr.	1815 Indian Creek Dr. N
Dr & Mrs J.R. Mitchell	257 W. Indian Creek Dr.
W.J. Westerman	305 E Indian Creek Dr.
Inez B. Westerman	305 E. Indian Creek Dr.
Joseph C Crenshaw	314 E. Indian Creek Dr
Mildred M. Crenshaw	314 E. Indian Creek Dr
Jack R. Shearer Co-Chairman	2109 Lake Drive
Mrs J.R. Shearer	2109 Lake Drive
Mrs. T.S. Talbot	2117 Lake Drive
L.J. Braithwaite	2105 Lake Drive
E C Latham	2071 Lake Drive
Mrs. John L Touchstone	2113 LAKE Drive
Mr Ronald Fairchild	2121 Lake Drive
Mr + Mrs. Tony Kidd Sr. & Family	474 E. Ridge Rd
Mr + Mrs William N. Reed Sr	476 E. Ridge Rd
Mr + Mrs Lee V. Davis	478 Ridge Rd East
Mrs. M F Crandle	480 Ridge East
Mrs. Aurelia S. Stockton	2431 Ridge Road N.
Mrs. Vetta S. Wesley	2433 So. Ridge Rd.
JoAnn Hertel	2214 Tonkus Dr

This is for my daddy because he is not home at the moment it ok

39
25

96<

11

44

NAME	ADDRESS
Mr + Mrs E. E. Welch	310 E. Lourdes Cir
Mr + Mrs G. P. Canfield	2200 Lousant Dr.
Mr + Mrs J. R. Johnson	2315 Toulouse Dr.
Mr + Mrs C. Melton Fox	2257 Toulouse Dr.
Mr + Mrs F. A. Walsh, Jr.	2207 Lousant Dr
Mrs. Alex Bloch	2316 Toulouse Dr.
Mr + Mrs A. H. Flynn Jr	2312 N Lourdes Cir
Mr + Mrs. O. W. Donaldson	2323 Toulouse Dr.
Mr + Mrs. L. D. Logan	2324 N. Lourdes Cir
Mr. + Mrs. L. Bates	2330 N. Lourdes Cir
Mr + Mrs H. B. Schaubach	2320 No. Lourdes Cir
Mr. & Mrs. Wm R. Lawton	301 W. Lourdes Circle
Roy Hoaelmeyer	300 W. Lourdes circle
Kitty Hoaelmeyer	300 W. Lourdes circle
Florence Hoaelmeyer	300 W. Lourdes circle
Mr + Mrs. Douglas K Taylor	2317 No Lourdes Cir
Richard S. Capps	2200 Toulouse Dr
Mabel Capps	2200 Toulouse Drive
Mrs L. H. Farned	2200 Toulouse
Betty Wilson	2203 Toulouse Dr
Gregory O. Fields Jr	2211 Toulouse Dr.
Susie House Fields	2211 Toulouse Drive.
Ed. S. Brown	305 Stanton Rd.
Milton Maisel	2206 Toulouse DR
Sylvia Maisel	2206 Toulouse Dr.
Arthur Olensky	2208 Toulouse Dr.
Laverne Olensky	2208 Toulouse Dr.
Mrs H. T. Bryant	2020 Toulouse Cir
Mr H. T. Bryant	" " "
[illegible]	[illegible] Toulouse Dr

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NAME	ADDRESS	TELEPHONE NUMBER
Leon Allen Hendricks	466 Ridge Rd W.	
Dorothy Y. Williams	461 W. Ridge Rd	
Mrs. Erda Mae Turner	463 W. Ridge Rd.	37
Mrs Catherine Bettany	467 W. Ridge Road	29
Mrs. Fred G. Perkins	469 W. Ridge Road	
Miss Sarah Jones	471 W. Ridge Road	
Mr & Mrs T. A. Rillary	475 W. Ridge Road	
Mrs. Beatrice A. Dickinson	2442 N. Ridge Road	
Fred Foskett Jr	2435 N Ridge Rd	
Rev & Mrs. Hollie	476 West Ridge Rd	
Mr Bennie Jackson	470 Ridge Rd	
R. E. Williams	2434 Ridge Rd S.	
Jesse W. Yelding	2435 Ridge Rd S.	
Magellan Goode	2432 So Ridge Road	
Mrs. Grace A Goode	2432 S. Ridge Rd.	
Lucious A. Noble	465 East Ridge Rd	
Rev. Louis Sanders	467 E. Ridge Rd.	
MR Raymond McClammy	469 E. Ridge Rd	
Miss Dorothy P Thomas	471 E Ridge Rd.	
Mr and Mrs Frank Snowden	475 E Ridge Rd.	
Mr and Mrs Tommie Webb	2423 Ridge Rd.	
Mr. Eddie White	455 West Ridge Rd	
Mr. Alexander Moore	2438 Redmond St.	
Mr. Carnel McCall	416 Ridge Rd-West	
Mrs. Helen D. Hannon	406 West Ridge Rd.	
Mr & Mrs. Willie J. Blanks	408 West Ridge Rd	
Mrs. Rebertha Beville	402 West Ridge Rd	
Mrs M Ory Joseph	2431 S Ridge Rd	
Mrs Evora A Williams	466 E Ridge Rd	

13

NAME	ADDRESS
Mr & Mrs R.W. Davis	2204 Loursant Dr
Mr + Mrs John F Allen	2212 Loursant Dr.
Jessie H. Murray	2214 Loursant Dr.
Phillip P. Laden	2216 Loursant Dr.
Mr. & Mrs J B McDonough Jr.	2220 Loursant Dr.
Morton M Kochman	2219 Loursant Drive
Mrs. William Riggs	2215 Loursant Dr.
Arthur Miller	2205 Loursant Drive
Mr. + Mrs David Adams	2201 Loursant Dr.
Mr & Mrs Paul Minkemmette	2309 N. Lourdes Cir.
Dr + Mrs. Horace W. Thurber	2313 N. Lourdes Circle
Dr & Mrs V. Palewada	309 W. Lourdes
Florence Balleson	2310 Toulouse Dr.
Mr & Mrs. Louis Lewis	306 W. Lourdes Dr.
Mr. & Mrs N.A. Watson	305 W. Lourdes
Mr & Mrs Leonard R Fox	2318 No. Lourdes Cir
Mrs. R. L. Richert	2221 Toulouse Dr
William E. Cato	2223 Toulouse Dr
Audrey P. Cato	2223 Toulouse Dr
Duplicate — Mr & Mrs. Owen McDonnell	2263 Toulouse Dr
Mr. & Mrs Dick Pettibon	2305 Toulouse Dr.
Mrs. Ruby K. Stewart	2309 Toulouse
Mrs. J. Yestadt	2317 Toulouse
Mr. J. Yestadt	2317 Toulouse Dr
Mrs. W. E. Ferrell	2258 Toulouse Dr
Mrs. W. L. Anthony	2212 Toulouse Dr.
Mr. W. E. Ferrell	2258 Toulouse Dr.
Sam Lindy	2251 Toulouse Dr
Mrs Sam Lindy	2251 Toulouse Dr.
Dr & Mrs. A. Thal[illegible]	22[illegible] Toulouse Dr

the most feasible course of [illegible] siderations include impounding of water for future industrial use, spillway to reduce amount of water in Creek in a time of flooding.

Respectfully submitted,

NAME	ADDRESS
Mr. & Mrs John van Aken	2404 Spring Hill Avenue
Mrs George B. Bragg	2010 No. Forest Drive
George Bragg	2010 N Forest Dr 33 20
Mrs D. K. Bishop	2010 No. Forest Drive
Mrs J. L. Donnelly	320 Siena Vista 473-1631
J. L. Donnelly	320 Siena Vista 473-1631
Mrs Collis Rogers	2530 McKinney 473 3128
Mrs. Nannie L Wilk	609 Petit St 4732981
Mrs Dennie E. Irby	606 Petit St 479-4616
Mrs Pauline Morris	604 Petit St-479 3858
Mrs James Ella Johnson	610 Petit St 473-8278
Mr. & Mrs. Norman	611 Petit St. 471-4069
Mr. & Mrs. W. Baker	613 Petit Avenue 479-8422
Mr & Mrs J. N. Bailey	615 Petit Ave. 4734919
Mr. and Mrs. Melvin Robinson	617 Petit St. 473-2123
C J Major	
619 PETIT	
4732721	
Mr & Mrs H. B. Lamar	623 petit ave. 479 1969
Mrs. Clara Roberts	651- Petit Ave. 478-6271
Mr. & Mrs. James D. Hekler	655 Petit Ave. 457-3982
Mrs Vera Ayler	616 petit St 4714397
Mrs. Pearl Raine	621 Petit St 478 4672
M. Mary Henderson	3852 Rue Maison
Henrietta Roth	3852 G Rue Maison
Annie McCreary	3852 H Rue Maison
K.W. Whisrand	3852 F Rue Maison

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Respectfully submitted,

NAME	ADDRESS
Herbert Q. Martin	206 Walshwood Avenue
Mrs. Herbert Q. Martin	206 Walshwood Ave.
Mrs. Wm. D. Walsh	169 Walshwood Ave
William D. Walsh	" " "
Leo F. Geary	304 E. Indian Creek Dr
Pearl Geary	304 E. Indian Creek Dr
Charles B. Phillips	309 E Indian Ck Dr
Betty S. Phillips	309 E. Indian Crk Dr.
Edwin D. Morton	312 E. Indian Creek Dr.
Margaret C. Morton	312 E. Indian Creek Dr
Mildred N. Crenshaw	314 E. Indian Creek Dr
Joe Crenshaw	314 E. Indian Creek Dr.
Mr & Mrs. R H Denton	2015 N. Covert Dr
Mrs Hamilton Cannon	2402 Baxter St.
Mrs. Robert N. Sims	2401 Baxter Street
Mrs C. M. Baldo Sr.	2411 Drake St
Howard B. Pollard	300 Chidester Ave.
Marion E. Ziegelmeier	266 Chidester Ave.
Mr. Robert W. Sims	2401 Baxter St.
John W. Sims	1806 Dauphin St.
Mrs Nelson Greer	267 Chidester Ave
Mr and Mrs R. T. Craig	253 Chidester Ave.
Mr & Mrs H. L. Baker	[illegible]
Mrs. M. V. Coffin	2418 Myrtle St.
Mr + Mrs. N. L. Beasley	2505 Myrtle St.
Mary R. Mills	2507 Myrtle St.
Verna Tew	2509 Myrtle St
[illegible]	2518 Jasmine St
Mrs Matt J. Lawler	270 Park Ave.
[illegible]	[illegible]

of the Belt Line Highway (none of which would reduce the fair weather flow of water in the stream) after a survey of each and an overall study to determine how the greatest drainage benefits could be attained, and the most feasible course of action could be identified. Among the considerations include impounding of water for future industrial use, spillway to reduce amount of water in Creek in a time of flooding.

Respectfully submitted,

NAME	ADDRESS
Mrs Marvin Mead	2403 Batter St Mobile ala
Mrs Evelyn Guy	2410 - Batter St Mobile ala
Aubrey E Price	2410 Drake St. Mobile Alabama
Mr & Mrs Curry Drake	2411 - Batter St Mobile ala
James G. Brewer	306 Chidester ave, Mobile
Mrs. James G. Brewer	"
Mrs M. Y. Luckie	304 Chidester ave
Mrs Jeanne Green	305 Chidester Ave.
Charles F. Green. Jr.	— — —
Mrs Archie Fountain	307 Chidester ave
Miss Catherine C. Fountain	307 Chidester avenue
Mr & Mrs C C Fleming	2518 Jasmine St.
Mr & Mrs C A Sanders Jr.	2511 Myrtle St
J N Bradley	269 Chidester Ave.
Ruth Bradley	269 Chidester Ave
Mr. & Mrs C P Bradley	303 Chidester Ave
Margaret B. McLeod	301 Chidester Ave
W. A Maurin	} 302 Chidester Ave
Mrs. Nora Maurin	
Mrs. J. C. Moss	2263 Du Broca St
Mrs Geo J Sandoz	2261 Du Broca
Mr. & Mrs H.B. Fonde	2257 Dubroca St
Mrs Ben Meese	2217 Dubroca
Earl Patterson	2217 Du Broca
[illegible] Louis [illegible]	2209 DuBroca
Mrs P.E. Sonnier	301 Woodland ave.

Respectfully submitted,

NAME	ADDRESS	PHONE
Geo Christopher	Mobile St Ser Sta	
Florence Christopher	Mobile St (517)	
Michael Wasilowski	520 N Mobile St	479-3091
Sarah Wasilowski	520 Mobile St	479-3091
Mrs W. E. Wilkins	2666 Mill St	478-3087
Nettie Williams	2653 McKinney St.	471-2387
Mrs Mrs C W. Tucker	520 Julian St.	4793965
Mrs Lottie E Young	2652 McKinney	
Mrs Alice Com[illegible]	2655 McKinney	
Oley Lucious Jr	522 Julian St	45 5173
Mr & Mrs Lawrence Andry	2603 Mill Street	
Mr & Mrs Oscar Craig	2603 Mill Street	
Mrs Wiley C. Joyner Jr.	2008 N. Levert Drive	
[illegible] Jr	2014 N. Levert Drive	
E. E. Blackwell Jr.	2014 N. Levert Drive	
Elizabeth T Blackwell	2014 N. Levert Drive	
Wiley C. Joyner Jr.	2008 N. Levert Drive	
Cecile H. Taylor	2007 N. Levert Drive	
Mr & Mrs F.H. McBroom	2702 Bailey St	
Mrs J. C. McDonald	301 Siena Vista	
Mrs [illegible] Locke	251 Siena Vista	
Mrs M R Tillett	297 Siena Vista	
Lucile G. Ladnier	263 Siena Vista	
Mr. & Mrs Alvin Johnson	265 Siena Vista	

10. Impound and/or divert flood waters of Three Mile Creek west of the Belt Line Highway (none of which would reduce the fair weather flow of water in the stream) after a survey of each and an overall study to determine how the greatest drainage benefits could be attained, and the most feasible course of action could be identified. Among the considerations include impounding of water for future industrial use, spillway to reduce amount of water in Creek in a time of flooding.

Respectfully submitted,

NAME	ADDRESS
Paul E. Fearn Jr.	312 Siena Vista
Dolores C. Fearn	312 Siena Vista
Laura B. Pryor	315 Siena Vista
Wm. Holcombe Pryor	315 SIENA VISTA
B. H. Voor, Jr.	319 Siena Vista
Joan T. Voor	319 Siena Vista
J. C. Mose	2263 [illegible] st
Floyd M Mayfield	2321 Old Shell Road
James Johnson	211 [illegible] st
Robert B Kreitner Mayor	272 Siena Vista
Chas. O Bailey	269 Siena Vista
E [illegible]	270 Siena Vista
Archie J. Leibert	296 Siena Vista
Robert L. Schoonover	318 Siena Vista
T L Byrd	321 Siena Vista
L. D. Pearre	278 Sienna Vista
C. L. Martin	274 Siena Vista
P. R. Jones Jr	304 Siena Vista
William G. Stein	271 Siena Vista
J Kenny Cider	267 Siena Vista
W. E. Ladnier	263 Siena Vista
Edw. L. Parker	261 Siena Vista
J. A. Calametti, Jr.	287 Siena Vista
Mrs M M [illegible]	284 Siena Vista

NAME	ADDRESS
Barry Hainain	1509 Government St.
Bill Thomas	1 N. Florida St.
Williams Estes	301 Ridgelawn Dr.
Jerrel H. Adams	3808 N. Llewellyn Dr.
[illegible]	11 Japonica Av
[illegible] Cehor	1759 Spring Hill Rd
H. Baumer	4156 N. Carmel Dr.
George Harton	4267 [illegible] Dr
A Reed	1253 Helm Ci
Alex G. Napier	68 Byrnes Blvd
Edwin Rubenstein	511 Nantucket Cr.
Le Mayne Johnston	1106 Springhill Ave
C. B. Cobb	3857 Old Shell Rd
Mary Kelly	4251 [illegible] Ct
[illegible]	66 Turnin Lane
Nick E. Trey	Rt 4 Box 109, MOBILE
Grace G. Jones	516 Ridgelawn Dr. W.
W E Underwood 3-	160 Roberts St.
W W Mills	85 Lee Street
[illegible]	1108 Pace Parkway (over)
B. L. Jones	1106 Springhill Ave
Donald C McWilliams	5025 Ridgelawn Dr West
James P Balthrop	1002 Woodside Drive, E.

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[illegible] with the use of [illegible] prohibiting the disposal of or deposit of any garbage, [illegible] [illegible] trash, or any offensive or noxious substance in any part of the stream in the City of Mobile,

8. Require an inspection from inside of the Creek to locate any outfalls of storm or sanitary sewers which might discharge sewage or other pollution into the Creek and require corrective action.

9. Enact laws to prevent works in and/or adjacent to the waterway or elsewhere which might have a deleterious effect on the free flow of water downstream in the waterway. Permits for any such works should be issued by the City of Mobile, only after an on the spot investigation by the City Engineer and an endorsement on such permit to the effect that the prposed construction or other work will not adversely affect the drainage capacity of the waterway.

10. Impound and/or divert flood waters of Three Mile Creek west of the Belt Line Highway (none of which would reduce the fair weather flow of water in the stream) after a survey of each and an overall study to determine how the greatest drainage benefits could be attained, and the most feasible course of action could be identified. Among the considerations include impounding of water for future industrial use, spillway to reduce amount of water in Creek in a time of flooding.

Respectfully submitted,

Mrs. S. Palmer Gaillard, Jr.

Mrs. S. Palmer Gaillard, Jr., President
Mobile Infirmary Board of Trustees

Date: November 14, 1968

Mobile Infirmary Board of Trustees are:
Garet V. Aldridge
Jay P. Altmayer
J.T. Arendall
C.P. Armbrecht
Howard Barney
J.L. Bedsole
Sam Brown
Oliver H. Delchamps, Sr.
Mrs. S. Palmer Gaillard, Jr.
Kenneth R. Giddens
Mrs. J. Russell Goodloe
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Dwain G. Luce
J. Finley McRae
J.R. Mighell, Jr.
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JOHN S. FORSYTHE, GENERAL COUNSEL

United States Senate
COMMITTEE ON
LABOR AND PUBLIC WELFARE
WASHINGTON, D.C. 20510

November 14, 1968

Mr. L. E. DeCamp, Acting Chief
Office of Estuarine Studies
Federal Water Pollution Control Administration
Department of the Interior
Washington, D. C.

Dear Mr. DeCamp:

Thank you for your letter and the enclosures about the Federal Water Pollution Control Administration's plans for carrying out the comprehensive study of pollution problems in the Nation's estuarine areas. I am glad to have the information you have sent me and I appreciate your invitation to participate in the public meeting which is to be held in Mobile on November 21. A conflicting engagement makes it impossible for me to attend the meeting but you may be sure of my continued interest in the national estuarine study and in combating pollution.

With kindest regards and best wishes, I am

Very sincerely,

LH:rkc

UNIVERSITY OF ALABAMA
UNIVERSITY, ALABAMA 35486

November 8, 1968

Natural Resources Center
Water Resources Program

P.O. Box 6171

Director, Technical Programs
Southeast Water Laboratory
Federal Water Pollution
Control Administration
Athens, Georgia 30601

Dear Sir:

The Natural Resources Center of the University of Alabama has prepared the attached statement with reference to the public hearing to be held in Mobile November 21, 1968, in connection with development of estuarine resources.

It is requested this statement be placed in the record. If it can be arranged we will wish to have a representative at the public meeting to present the statement in person.

Very truly yours,

David M. Grubbs, Director
Natural Resources Center

DMG/sw

Statement of the Natural Resources Center of the University of Alabama for the public meeting to be held in Mobile November 21, 1968, in connection with development of estuarine resources.

"The University of Alabama is concerned with the optimum use of estuarine resources of the State. It is evident that development of this resource must be based upon judicious evaluation of relative benefits which will accrue to future generations. We are aware of damages incurred through estuarine pollution resulting from unrestrained industrialization and from municipal and other usage and, therefore, recognize the need for proper management of the resource. There is, however, a deficiency in basic data and criteria which will permit intelligent evaluation of the factors contributing to benefical utilization of our estuaries. We do not have the social and legal environment prerequisite to planning for effective water and related resources management.

The Natural Resources Center of the University of Alabama takes the position that additional and continuing research dealing with ecology, natural water quality, related land resources, demographic and economic projections, as well as recreational and other relevant considerations, is prerequisite to planning for future development of estuarine resources. The University of Alabama, through its various disciplines, is actively engaged in pursuit of knowledge which will provide answers to certain elements with reference to the problem. We propose that this activity should be pursued to the optimum realization."

AUBURN UNIVERSITY

AUBURN ALABAMA

36830

Water Resources Research Institute

826-5075
Telephone [redacted]
Area Code 205

November 18, 1968

Mr. John R. Thoman
Regional Director
Federal Water Pollution
Control Administration
Suite 300
1421 Peachtree Street, N.E.
Atlanta, Georgia 30309

Dear Mr. Thoman:

Dr. Harry M. Philpott, President of Auburn University, has asked me to reply to your invitation to present a statement at the public meeting to be held in Mobile on November 21, 1968, at the Admiral Semmes Hotel. Neither Dr. Philpott nor I can attend the meeting; therefore, I am sending this letter with the request that it be incorporated into the transcript of the proceedings.

The Water Resources Research Institute was established at Auburn University in 1964 as directed and authorized by the State Legislature and the Board of Trustees of Auburn University. The purpose of the Institute is to assist in assuring that the State and the Nation at all times have an abundance of water, both as to its quantity and quality, necessary to meet the requirements of an expanding population and industrial community. To meet this purpose the Institute's program is designed to stimulate, sponsor, and provide for the conduct of research in the field of water and other resources as they affect water, and to encourage the training of scientists in fields related to water.

I wish to add emphasis to the statement in your booklet describing the National Estuarine Pollution Study, that an understanding of the complexities of pollution control and water quality enhancement requires the development of a great body of technical information oriented specifically to the estuarine environment. We do not now have criterion to allow establishment of management procedures providing for optimum conservation (including use and development) of our estuaries. Your study, under the Clean Water Restoration Act of 1966 will certainly document this.

The Water Resources Research Institute has been actively working with research scientists on the staffs of several universities and colleges and state agencies in Alabama to stimulate research efforts that will provide some of the criteria. The scope of research efforts presently underway will be greatly expanded as research proposals recently submitted to the Office of Water Resources Research of the Department of the Interior, can be supported. Efforts are continuing to develop other problem-oriented research in the estuarine areas. Research needs include an analysis of economic and social values (including recreation) of the estuaries to insure that long-range commitments of important segments of our estuaries provide for optimum development and protection of this limited resource.

Very truly yours,

James C. Warman
James C. Warman ko
Director

JCW:ko

cc: Dr. Harry M. Philpott

STATEMENT BY SOUTHERN INDUSTRIES CORPORATION AS TO OPTIMUM USE AND FUTURE DEVELOPMENT OF ESTUARINE RESOURCES OF THE STATE OF ALABAMA, FWPCA MEETING NOVEMBER 21, 1968

I am Lieutenant General Walter K. Wilson, Jr., U. S. Army, retired, Vice President of Southern Industries Corporation, Mobile, Alabama. I appreciate this opportunity to express the views of Southern Industries Corporation on the optimum use and future development of estuarine resources.

Southern Industries Corporation, through its operating subsidiary Radcliff Materials, Inc., has been primarily engaged in the management and development of one of these estuarine resources, i. e., dead reef oyster shell. It naturally follows that in so doing we have become vitally interested in the other estuarine resources and have, I am proud to say, played a major part in their development also.

Recently, in cooperation with the Seafoods Division of the Alabama State Department of Conservation, Radcliff made major contributions to the mapping and inventorying of all live and dead shell resources in the coastal waters of Alabama.

The royalties our company pays annually on dead reef shell comprise the bulk of the Alabama Seafood Division's budget from which is derived most of this estuary's research funds.

Radcliff Materials, Inc. has experienced excellent relations with the Conservation Department through which the dredging rights are granted. The contracts are closely monitored by the agency and supervision is continually administered. The material usually recovered is thousands of years old and normally lying under two to forty feet of overburden.

Periodically, in support of the Seafood Division's program, the shell Radcliff dredges is transported and planted in optimum oyster growth areas to be used as a clutch material for the future development of the live oyster industry.

The oyster shell, for years a resource considered worthless, today provides good jobs for thousands of people of Alabama and other areas where shell is mined.

One of the purest forms of calcium carbonate, shell is the basic raw material in the manufacture of cement, steel, and lime, as an aggregage in the construction industry and as a feed supplement in cattle and poultry rations.

Dead reef oyster shell and wildlife and fisheries are by no means the only interests built around the resources of this estuary, there are many more. There are potential industries yet unknown that will derive their existence from estuary resources.

Likewise, Radcliff materials, Inc. has experienced excellent relations with the respective Conservation Departments in Florida and Louisiana where we are currently carrying out extensive shell dredging operations. While, because of the location of this hearing, my remarks are focused on Alabama, they apply to our other operations as well.

Our company is extremely conscious of the value of clean water in our estuaries. We have made extensive studies into sewage treatment plants on all our floating equipment and have continued to make installations where regulating agencies could furnish codes, not waiting until cited, but continually anticipating the need.

We have read, with interest, the testimony being presented today by the New Industry Committee of the Mobile Area Chamber of Commerce, and generally concur in their observations. Specifically, we concur that the states in which we are operating are capable of and are protecting the interests of all their citizens and should continue to control their own destiny, and that the greatest contribution the Federal Government could make would be in the field of research and development.

It is unfortunate that research in estuarine areas and resources has been inadequate. Concentration by the Federal Government on funding State research and supplementing with coordinated Federal research programs should develop factual data which would enable the states to do an even better job.

Robert G. Luntz, Jr., as far back as 1938, conducted studies as to the biological effects of dredging operations upon oysters in relatively shallow bays and lagoons and notes that dredging operations had no influence on spawning and setting and that no harm was done to oysters unless the oysters were actually covered by spoil. He also noted that the bacterial content of mud underlying open and impounded waters is progressively smaller in number as the depth is increased. This high count of bacteria at the mud surface is lifted up and redistributed by dredging operations providing nutritional value.

Robert M. Ingle in 1952 completed the same type study and along with the information provided by Mr. Luntz and many other noted biologists concluded that damage to scalefish and crustaceans was not observed, even within 25-50 yards of an active dredge. Shellfish were not found to suffer damage when suspended from the dredge itself. Damage due to larger particles of mud occurred on the bottom in the immediate neighborhood of the dredge, but did not extend beyond 300 to 400 yards. In most cases the distance was much less, in some cases being about 75 yards. He also found evidence, as did Mr. Luntz, that dredging stirs up highly organic particles resulting in a beneficial effect to shellfish and crustaceans.

In summary, all interests, public and private, will have to give intelligent consideration to the uses of our estuarine areas and by mutual agreement and cooperation produce a means of future development that will be the most beneficial to every citizen of our community.

Again, we at Southern Industries feel that the resource we have developed is a vital one to this area and we stand ready to contribute in a reasonable manner towards the future development of the estuarine and coastal waters of Alabama.

RURAL ALABAMA
•
A GOOD INVESTMENT

Alabama
Rural
Electric
Association
OF COOPERATIVES / 3 SO. JACKSON ST / BOX 7120 / MONTGOMERY, ALA 36107 / PHONE [illegible]

DAIL GIBBS
MANAGER

JAMES A. VANN, JR.
PRESIDENT
HUGH M. BROWN
VICE-PRESIDENT
KYLE H. SMITH
SECRETARY-TREASURER

November 14, 1968

Director, Technical Programs,
Southeast Water Laboratory,
Federal Water Pollution Control Administration
Athens, Georgia 30601

Gentlemen:

This is in response to the invitation directed to our organization by Regional Director, John R. Thoman, on October 11, 1968, to present a Statement in respect to Estuarine Resources.

First, let me state that our organization is a Member-Assocation comprised of twenty (20) Electric Cooperatives operating in the State of Alabama. Among the purposes for which we were founded is that to provide informational programs that will stimulate local growth, stability and security, and strengthen the consumer-owned Electric Cooperative program in Alabama. Additionally, we provide a means by which we may support or oppose legislation and/or policies which affect the Rural Electrification and Resources Development of the area.

Accordingly, and in line with our avowed purposes, we wish to state that we heartily endorse the need and the objective in properly studying the Estaurine Pollution Problems and urge your administration to exert all effort to accomplish the aim and the objectives as outlined in the amended "Clean Water Restoration Act of 1966".

Needless to say, as a Statewide organization, we have and will continue to endorse any program which deals with the comprehensive and full development of water resources in the State of Alabama, whether they be along the individual streams or as they will affect the Estaurine Zones. Our interests strongly support water resources development for the purpose of hydro-electric development which could insure a low cost and adequate power supply to the users of electricity throughout the state as well as for all of the other multiple benefits which will accrue to the Rural Electrics as a result of industrial development, recreation and other purposes which normally are associated with such water resources developments.

We offer the services of our organization in respect to the soliciting of information which may be of value to your study group and stand ready at any time to respond to requests as may be appropriate in respect to our field of interests throughout the area as well as in the coastal zone.

We appreciate the opportunity to provide this statement of endorsement for the study in question.

Yours truly,

ALABAMA RURAL ELECTRIC ASSN.

James A. Vann, Jr.

James A. Vann, Jr.

JAV/pl

COPY

ALABAMA FISHERIES ASSOCIATION

Let me give you my opinion and knowledge of what's happened, and is going to happen, if we, the U. S. public, don't do something about it -- United -- not only passing state laws, but demand Federal laws with heavy penalties giving fair judgement to put a stop to all this pollution. All these meetings and publicity that has been going on for the past 20 years -- it is about time to do something about it.

What we need is more Federal research and continuous Federal inspection at all chemical and industrial sites that are the polluters. This is causing all the fish-kills and polluting our stream, bays, and coastal estuaries and driving the domestic fisheries out of business and depriving the freshwater industries -- also the sport fishermen from their game fish and hunting, plus the destruction of our natural resources and properties. All industries should clean house by giving us clean water, to produce wholesome fish and shellfish. In turn, all packing plants can produce wholesome seafoods as the Pure Foods and Drug requires for the general public.

The Department of Interior knows this and also knows that we are in trouble. Unless something is done about the pollution in all parts of our four (4) oceans, we will have to fall back like the farmers in the Department of Agriculture for subsistence. We have no laws that can convince or penalize or fine the large industries that are doing the polluting. They not only damage the commercial fisheries, but all game fish and all hunting game. But, there are laws to fine and imprison the POOR HUNTER and the POOR FISHERMAN.

The statistics show that the domestic seafood industry of all of the U. S. A. production in the past ten years has been less and less. Last year only 46 per cent of all seafood consumed was domestic. 54 per cent was imported from foreign sources. The U. S. fisheries in the past ten years have dropped to sixth place. We are competing with number one, Russia; Japan; China; Peru; India; Pakastan; South America; and Africa. This means by 1975 we will be at the mercy of all imported seafoods from all countries.

(Signed)

J. S. Ramos, President
Alabama Fisheries Association

Statement Submitted to Dr. Ira L. Myers, For the Record of the Public Meeting held in Mobile, Alabama, November 21, 1968 by the Federal Water Pollution Control Administration Pursuant to The Clean Water Restoration Act of 1966.

By

William F. Anderson, Chief
Seafoods Division
Alabama Department of Conservation
Dauphin Island, Alabama

The Alabama Department of Conservation has a vital interest in the States' estuaries. The Department's Seafoods Division has the assigned responsibility to develop the commercial and sport saltwater fisheries, and to preserve, protect, and propagate, fish, shrimp, oysters, and other shell fish and crustaceans existing or living in estuaries of the State (Code of Alabama, 1940, Title 8, Section 4).

Waters of Mobile Bay, Perdido Bay and other Alabama estuaries are important to our well being and they have many varied and unique uses. Some uses conflict with other interests while many uses are compatible. The Seafoods Division's primary interest in these waters is their management by the best known methods that will restore, protect, maintain and enhance the valuable fishery resources that only these unique waters can provide.

Many answers to problems we are faced with in the management of our esturaries are not presently known. However, it appears evident that some of today's problems will become tomorrow's crises unless positive steps are taken to improve, protect and preserve our estuaries. Alabama's Water Pollution Control Act of 1965 and the Federal Water Pollution Control Act, as amended by the Water Quality Act of 1965, are steps in the right direction but they have not solved all the problems.

Events of recent months indicate that pollution remains a problem in Alabama estuaries and contributory streams. Some of these events are as follows:

(1) Fish kills that occurred in the Eslava Creek - Dog River - Tar Creek area of Mobile. A total of over 4,500,000 dead fish (mostly menhaden) in 16 separate fish kills have been reported from the area during the past 7 months.

(2) Fish kills that occurred in Industrial Canal and Three-Mile Creek. More than 500,000 dead fish (mostly menhaden) were reported in this area during August and September, 1968.

(3) Two major fish kills occurred in the Tombigee River below Geigy Chemical Company near McIntosh, Alabama, during June, 1968. The two kills resulted in the loss of more than 100,000 fish.

(4) A fish kill occurred in Chickasaw Creek during September, 1968. It resulted in the loss of over 5,000 fish.

(5) Oil spillage was reported and investigated near Alabama Refinery Company during January, 1968, and oil spillage was reported and investigated in Mobile Bay at Theodore Docks Terminal during September, 1968.

(6) Numerous shrimp, crabs and fish died in Mobile Bay near the U.S.S. Alabama during October, 1967.

(7) About ½ of Mobile Bay remains closed to the harvest of oysters by regulation of the Alabama State Board of Health.

(8) The major productive oyster reefs in Mobile Bay and Mississippi Sound, Alabama were closed to the harvest of oysters by the Alabama State Board of Health from January 12, to March 4, 1968.

(9) Areas near the mouth of Bayou La Batre, mouth of Bayou Coden, and Bayou Aloe and an area of Bon Secour River remains closed to the harvest of

oysters by regulation of the Alabama State Board of Health.

(10) A major fish kill occurred in Bayou La Batre during July, 1967.

(11) Complaints of pollution in Perdido Bay, reported to be caused by paper mill waste from Eleven-Mile Creek, are still received.

(12) A large area of Polecat Bay remains filled in with silt.

(13) A proposal has been made to construct a ship channel and to deposit spoil in an area of Mobile Bay presently classified as Fish and Wildlife use.

FISHERY VALUES

Landings of fish and shellfish in the Alabama Coastal area during 1967 were 26,412,310 pounds valued at $8,300,020 dockside. The value of the fishery products after processing was over $13,000,000. The dockside value of oysters was more than $1,000,000 during 1967. The value of oysters landed during 1968 is expected to be significantly lower due to the closure of reefs during a 7-week period. There were 68 seafood wholesale and processing firms in Alabama that employed 1,185 people during 1968.

NEEDS

Specific needs that we feel require immediate attention to better manage and protect Alabama's estuaries follows.

1. Monitoring and Enforcement: A more rigid monitoring program is needed to determine if water quality standards and permits to industries as set by the Alabama Water Improvement Commission are complied with. Rigid enforcement of State and Federal water pollution laws is needed to protect water quality of our estuaries. Responsible agencies should initiate the necessary steps required to enhance water quality in polluted interstate waters in compliance with the Federal Water Pollution Control Act, as

amended by the Water Quality Act of 1965.

2. Use of Existing Information: Existing information on the minimum and optimum requirements of estuarine organisms is meager. A National Technical Advisory Committee on Water Quality Criteria, was appointed by the U. S. Secretary of the Interior for the primary purpose of recommending water quality criteria for fish, other aquatic life, wildlife and other uses. The Committee, comprised of a wide range of outstanding experts in various fields of water uses, made recommendations on minimum water quality standards and research needed for marine and estuarine organisms. These recommendations are published and available and should not be overlooked by agencies concerned with estuaries.

3. Research: Research programs designed to provide information needed to properly manage our estuaries should receive high priority. Such programs can be purchased but another Mobile Bay cannot. Financial aid and technical efforts of Federal, State, and local public bodies; institutions; private organizations; and individuals are needed to initiate, coordinate and carry on the research programs. The approach to research aimed at improving and maintaining the environment of estuarine organisms should be, "What is the quality and quantity of aquatic resources that we now have and should have in the future, and how can these resources be restored, protected, maintained, and enhanced?" Research that is broad in scope, pertinently oriented, carefully designed, and adequately financed will supply this information.

Some research projects which we feel deserve special attention include studies to determine the potential damages to fish, shrimp, oysters, crabs and other marine organisms by thermal pollution, oil pollution, insecticide pollution, changes in isohaline patterns, changes in currents, channel construction, spoil deposits, and siltation. We are particularly concerned about proposals to construct channels, deposit spoil, and alter the basin geometry of our estuaries without prior knowledge of the probable effects of such changes on estuarine organisms and the environment. Closer communication, coordination, and planning between Federal, State, and other agencies are needed in the preliminary planning stages of projects that alter our estuaries or that interfere with migration of fish, shrimp, or crabs and other organisms through the estuaries. We are not only concerned with protecting resident species. We are vitally concerned about physical barriers and pollutants that might block the upstream and downstream migration of striped bass and other anadromous species.

Proper management and protection of our estuaries is vital to our well being. Scientific knowledge alone will not do the job. Responsible administrators at each level of government and industry, properly trained technicians and scientists and an informed public are essential. The cost of proper management of our estuaries must become a part of doing business in this country. We must be willing to assume that cost to preserve and properly manage our estuaries.

1214 Owens Drive SE
Huntsville, Alabama 35801
November 18, 1968

Director,
Technical Programs
Southeast Water Laboratory,
Federal Water Pollution Control Admin.
Athens, Georgia 30601

Dear Sir:

While pondering sources of research material for reference to preparation of a statement to submit in connection with the public meeting to be held in Mobile, Alabama on November 21, 1968 to the National Estuarine Pollution Study, I came across an article by Mr. H. E. Harrison, Jr., President, Wetlands and Estuaries for Tomorrow, Plymouth, North Carolina. I don't believe that I could improve on Mr. Harrison's presentation and I submit a copy of it taken from the November, 1968 issue of Wildlife in North Carolina.

In addition, I wish to add that many of us living in North Alabama enjoy the variety of outdoor recreation offered by the Gulf Coast area. We enjoy the contrast of scenery as well as salt water fishing for occasional contrast to our hills and fresh water sport fishing. Surely the hearing will have others present the substantial economic value from tourism and outdoor recreation in our state. But, I emphasize my own strong feelings about the importance of this industry as I observe our industrial expansion workers continue to concentrate on attracting smokestack industry. I don't belittle industrial factories, but I urge public officials to not overemphasize their relative importance to our fast changing economic patterns of consumer spending.

wrong." And, presently, there is no State or Federal agency with clear cut responsibility and authority over the entire costlands. As a result, no single agency views estuaries as its sole responsibility and "that which belongs to everyone belongs to no one." Hopefully this will be resolved in the near future.

Recently the State Estuarine Study Committee of the Governor's Interagency Council on Natural Resources presented to the Council a comprehensive work plan recommending ways to more efficiently manage North Carolina estuaries. The Council endorsed the program and Governor Moore has accepted it. The program includes an estimate that it will be necessary for the State to acquire 100-150 thousand acres of estuarine lands and waters to make sure the estuarine system will still be functioning for future generations, and to provide hunting and fishing and other recreational pursuits for the present generation. According to the report, a small technical staff should be created to prepare plans for estuarine use. Governor Moore said, "I have authorized that the funds necessary to implement this program be requested as part of the Department of Administration's 1969-71 budget. Next spring this budget will come up before the General Assembly for its consideration; whether it appropriates the necessary funds and gives North Carolina an outstanding and forward looking program in natural resources administration or merely permits this program to join the many which have died for lack of public interest depends largely on you citizens . . . "

The eight-man Estuarine Study Committee represents the Department of Water and Air Resources, Wildlife Resources Commission, Division of Commercial and Sports Fisheries, news media, UNC Institute of Government, Attorney General's Office, Department of Administration, and The State Planning Task Force.

Dr. Adams, Chairman of the Study Committee at the time the work plan was recommended, sees it this way: "If the people decide that all development is good and the State has no business attempting to regulate it in any way, we simply are not going to have any estuaries as we now know them. If, on the other hand, the people decide that all of the estuaries were to be preserved in their present state in their entirety and that no development were to be permitted, large estuarine areas would be inaccessible to the majority of our people and not properly contribute to the well being of the State. The middle-of-the-road course appears to me to be the best. That is, somewhere there should be an agency whose function it is to continuously review the state of the estuaries. Development should be encouraged in areas where economic opportunity is greatest and damage to the estuarine system least. At the same time, large expanses of shallow water, tidal flats, and marshes, essential to the support of the estuarine system should be protected by whatever means are necessary."

Steps of the Estuarine Study Committee are indeed in the right direction. But those of us who care cannot sink back into our chairs and rest assured that the problem is taken care of, because right now, today, beach houses go up, a new marina comes to be, a small swarm of dredges and draglines work away—so many Davids working on Goliath (an aerial survey on August 17, found 16 dredges and 43 draglines busily at work along the coast). These are tangible changes, maybe good, maybe bad, depending on your viewpoint and your knowledge. But you can see them.

What can you do? "An element of the population must recognize the importance of rational use of estuarine areas and actively work toward preserving some portion of these lands and waters," Dr. Adams says. An individual can always let his government representative, be it a municipal, county, state, or national, know his concern. He can urge his local wildlife club to support the North Carolina Wildlife Federation. He can also join in with a brand new organization, Wetlands and Estuaries for Tomorrow. President H. E. Harrison, Box 400, Plymouth, urges concerned sportsmen to contact him to join the new group pledged to work with State and other organizations to prevent further destruction or alteration of North Carolina's wetlands. "We are dealing with a crucial issue and time is short." Harrison says. And he is right. ◆

Where To Now For Wetlands?

EDITOR'S NOTE: Wetlands and Estuaries for Tomorrow is a private, nonprofit conservation organization, affiliated with the North Carolina Wildlife Federation, and dedicated to the following principles:

"TO INSURE THAT OUR WETLANDS AND ESTUARIES AND THE RESOURCES AND BENEFITS THEREOF SHALL NOT VANISH FROM THE EARTH BUT SHALL BE PRESERVED FOR OUR USE AND ENJOYMENT AND FOR THE USE AND ENJOYMENT OF THE GENERATIONS OF TOMORROW, WE THE MEMBERS OF WETLANDS AND ESTUARIES FOR TOMORROW PLEDGE OUR EFFORTS:

- "to promote the conservation, restoration, management and wise use of all wetlands, estuaries and related natural resources;
- "to prevent the destruction or alteration of existing wetland and estuarine resources;
- "to reclaim, restore and enhance those wetland and estuarine resources which have already undergone alteration;
- "to promote sound, scientfic management of these resources;
- "to engage in activities which will bring about a better understanding of these resources and the ecological balances therein;
- "to promote and support adequate laws to protect

these resources and to prevent their exploitation;

*"to demand that laws pertaining to these resources are enforced firmly and impartially;

*"to encourage an acceptable code of ethics in regard to the use of wetland and estuarine resources;

*"and to inform, to educate and to stimulate the public mind toward more constructive attitudes in regard to the aesthetic, recreational and economic value of these resources."

The following statement, prepared by H. E. Harrison, Jr., of Plymouth, President of Wetlands and Estuaries for Tomorrow, was presented by Turner Battle, Executive Director of the North Carolina Wildlife Federation, to a federal estuarine study committee at a hearing in New Bern last summer.

Gentlemen: On behalf of Wetlands and Estuaries for Tomorrow, let me express my appreciation for the privilege of being allowed to present to you, through Mr. Turner Battle, the following comments relative to the conservation of our estuarine resources.

No informed discussion of the estuarine resources of North Carolina can take place among men who are not familiar with the information contained in two important recent publications: (1) PROCEEDINGS OF THE INTER-AGENCY COUNCIL ON NATURAL RESOURCES, November 21, 1967 and (2) A COMPREHENSIVE ESTUARINE PROGRAM FOR THE STATE OF NORTH CAROLINA, a report prepared by the Estuarine Study Committe and presented to the Inter-Agency Council on Natural Resources in May of 1968. Both of these publications are available on request from the Division of Sport and Commercial Fisheries of the North Carolina Department of Conservation and Development. I know of no other place where so complete an accumulation of up-to-date information relative to the state's estuarine areas is available in condensed form. These two publications are, I believe, the definitive ones and I assume that all of you are already familiar with them.

In the event that no copies are available for reference here today, I have appended to my statement copies of each. I have further appended five relevant articles from WILDLIFE IN NORTH CAROLINA, the official publication of the North Carolina Wildlife Resources Commission. (Allen, Durwood L., "Natural Resources and the Expansionist Philosophy," XXXI, No. 10, October, 1967, pp. 4-7 and XXXI, No. 11, November, 1967, pp. 4-6; Davis, Chester, "Waves of Development Threaten The Tidewater," XXXII, No. 3, March, 1968, pp. 4-7; Florschutz, Otto, Jr., "Multiple Use of Salt Marsh Impoundments," XXXI, No. 11, November, 1967, pp. 12-14; Shuster, Carl N., Jr., "The Nature of a Tidal Marsh," XXXI, No. 7, July, 1967, pp. 4-7 and XXXI, No. 8, August, 1967, pp. 12-13; Wallace, James C., "Our Changing Environment," XXXI, No. 6, June, 1967, pp. 6-12). I will not read either of these, but have included copies of them so that you may study them at your leisure.

Since there is very little which I could say about estuarine resources which would add to the information contained in the two reports from the Inter-Agency Council on Natural Resources, I would like to use the time which you have made available to me to editorialize briefly and to clarify the attitude which Wetlands and Estuaries for Tomorrow takes toward estuarine resources.

Someone once said that "a politician thinks of the next election; a statesman of the next generation." Each time I see the Commissioners of one of our coastal counties rush headlong into a marsh drainage project; each time I hear a representative of a "conservation" agency speak of a natural resource in terms of the industry which can exploit it; each time I read the promotional accounts of another "vacation paradise" which has been gouged out of a quiet marsh, I wonder just how many of our public officials are politicians and how many are statesmen. Each time I strip a slimy handful of wood fiber from my fishing line and, in disgust, pack up my fishing tackle, I wonder where our statesmen are. Each time I see a raft of fish drifting belly up on a polluted river, I wonder where our statesmen are. Each time I see another of those ugly orange signs erupt like a boil on the face of our coast to warn us "Polluted Waters, Shellfishing Prohibitied," I wonder where our statesmen are.

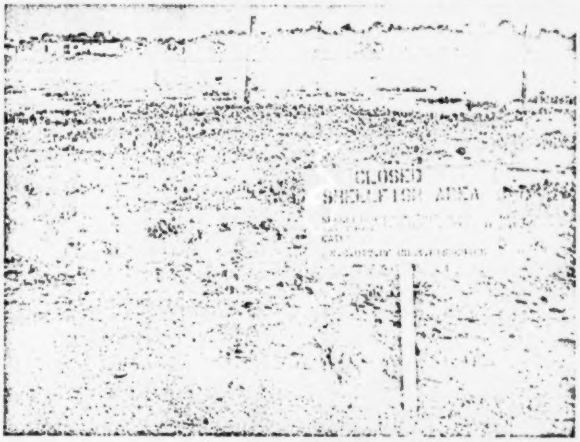

PHOTO BY RESEARCH AND DEVELOPMENT SECTION

Improper planning when changing the marshlands harms fish, oysters, and always, finally . . . you. Think about it.

If you think I am the only one who wonders where our statesmen are, just look around you. Count the number of organizations which concerned individuals have formed, like bucket brigades, to fight pollution and waste and destruction of our natural resources in this state and across the nation. Look at Ducks Unlimited, look at Wetlands and Estuaries for Tomorrow, look at the hundreds of wildlife clubs which make up the state Wildlife Federation. All of these organizations have been formed by men and women with a common interest: conservation of our natural resources. All of them are against the pollution and waste and destruction which is sweeping across the natural resources of our land like a rampaging fire. Each of these organizations is a bucket brigade fighting this fire. But bucket brigades are not enough; they can only supplement the efforts of a trained and organized "fire department" established and directed by the government.

If you think I am the only one who believes our government conservation agencies are sometimes directed more by politicians than by statesmen, you should spend one Saturday afternoon at a crossroads country store. Squat in the shade of the inevitable China berry tree and listen. Ask questions if you like. You will find that most of the men gathered there have more than just a passing interest in natural resource conservation. The information available to them may be limited to an intimate knowledge of a short stretch of the nearest river, their understanding of conservation problems may be likewise limited and they may not be as articulate as the professional phrase makers whose oiled and polished metaphors excuse the political and economic expedients of our day. But in brief and pointed comments, which most of you will readily understand, they will tell you that they are concerned about our natural resources—both for today and for the next generation.

Please do not misunderstand me. I am not saying that all government agencies are manipulated by politicians; I am not saying that the government has neglected its role in the conservation of our natural resources; and I am certainly not suggesting that any cane pole fisherman knows more about conservation than a resource agency biologist. However, I *am* saying that I think, and that a great many hunters, fishermen and other sportsmen think that the efforts of both state and federal government have, to date, frequently been insufficient.

If the old saw "an ounce of prevention is worth a pound of cure" has ever been true, certainly it is all too true of today's conservation needs. Unfortunately, however, many of our agencies are administering not the ounce of prevention, but the pound of cure—and in many cases 10 pounds of cure would not be enough, nor 100 pounds.

Most of us are aware of the multiple problems which any natural resource conservation agency faces. Most agency heads, if asked to list their problems, would begin the list with "insufficient funds" and end it with "not enough money." Certainly the financial needs of our conservation agencies are great and most of us are aware of the complexities of government budgets and of the struggle for funds. Too many times, in the past year, the past five years, the past 20 years, when the cookies were passed out, our conservation agencies have been last in line and have received the crumbs.

If a fire should break out in Croatan Forest this afternoon and sweep, uncontrolled, toward New Bern, the citizens of this town, the City Council, the Fire and Police Departments and the concerned state agencies would all drop the work at hand and turn out to fight the fire which could destroy their property and their lives. If the threat became more serious, it is possible that the Governor would call out the National Guard and request help from nearby military bases. Application for emergency assistance would be made to the federal government and New Bern might be declared a disaster area. We all hope this never happens.

But, gentlemen, a fire has broken out. It has been burning for a long time and our efforts to extinguish it have been little more than puny swats with a damp gunny sack. Now it is nearly out of control. As we sit here today the Neuse River is figuratively burning, and with it Pamlico Sound and the wetlands and estuaries which surround it. And with them the Cape Fear River and the Alligator River and all the rivers and sounds along our coast. Again, I refer you to the findings of the Estuarine Study Committee of North Carolina's Inter-Agency Council on Natural Resources: in the past 15 years 28.5% of our coastal salt marshes have been altered by ditching, dredging and filling operations alone. Although statistics describing the physical alteration of our marshes are avaliable, no comprehensive studies have been made which indicate how much insidious damage—yet undetected—has occurred as a result of chemical and other types of pollution.

The total damage already inflicted on our estuarine resources cannot be cited statistically, but those of us who hunt and fish in these areas know the damage is great. Those of us who go there seeking food for our souls just as much as those of us who go there seeking food for our bodies watch the source of our harvests diminish, and we are troubled.

You asked that I express my opinions on "optimum use of estuarine resources, their value, damages incurred due to estuarine pollution and how the estuarine resources should be managed." I think I have clarified my feelings on damages incurred due to estuarine pollution. Just to be sure, let me state it simply: the damages which we have already inflicted on the estuarine resources in North Carolina are disgusting in scope and reflect an attitude which borders on criminal negligence. With all our sophisticated technology, our "progressive" civilization, and our astounding sources of power, we are little more than a nation of barbarians despoiling all that we touch and touching everything within our reach. We have learned to subdue the earth and to extract from it food and fiber and mineral to suit our needs, but I fear that we have not learned to respect the earth—but respect it we must if we are to survive.

The value of our estuarine resources? I have seen reports which indicate that some of our estuarine areas produce more protein per acre than our best farm lands. Well, how much is an acre of prime farm land worth? But we can't really use that as a guide, can we? We could never farm an estuary. Why don't we contact a local real estate developer and price an acre of marsh along a developing waterfront? If we take his sale price as a guide we might conclude that estuarine acreage is much more valuable than any farm land we've ever seen.

On some parts of this very coast a 50' x 150' lot dredged—perhaps illegally—from the bottom of one of our sounds and piled on top of a choice bit of marsh sells for as much as $5,000. On the other hand, if we do not allow developers to alter the marsh, if we simply ask the going price of undeveloped marsh, it may sell for as little as 20 to 30 dollars per acre. The value of marshlands and of all estuarine resources depends—like most values—on the law of supply and demand. At the present time the supply of marshlands is quite limited, but there seems to be no limit to the demand for this property. Yet, I think I can safely predict that we in North Carolina have hardly seen the beginning of just what the demand for waterfront property will be in a few years.

Just what, then, is the value of our estuarine resources? I have not really answered that question, gentlemen, nor will I be able to answer it in dollars and cents terms. Let me ask you what is the value of two hours alone, on a cold November morning, in a blind you have built yourself, with a gun long familiar to your hands? Let me ask you what it is worth to see a flight of mallards swing out of the sunrise, beat up against the wind, set their wings and drop in your own special pothole? How much is it worth to us to be able to sit down to a well-spread table loaded with fresh oysters and bowls of steaming clam chowder? What value can we place on a 25-pound fish, 50¢ per pound in the local fish market or $50 per pound which a good many sportfishermen might be willing to invest in the same fish? What is it worth to any one of us who is able to hear autumn come in with the first big flight of Canadas? Let me ask you, gentlemen, what is it worth to us to enjoy these things, and what is it worth to us to insure that our children and our grandchildren shall enjoy them? Only when we have answered these questions, we will know the value of our estuarine resources, for their true value must be measured not in square feet of building space, not in pounds of fish for the market, not even in the number of recreational facilities which they will support; their value must be measured as we measure ourselves. Henry Thoreau once said, "In wildness lies the salvation of the world." I believe he was right. When we no longer value the freedom of the wary black duck, when we no longer care about the color of a sunrise, when we no longer are willing to fight for the rights of a striped bass to feed and to spawn and to pursue its life according to its nature, then we no longer value wildness and freedom in ourselves. When this happens our concrete encased spirits will no longer care if the air we breathe and the water we drink and the food we eat is tainted with our own wastes. I hope this day never comes.

If we are to forestall this dark day, we must immediately take steps to properly manage our estuarine resources. Toward this end, Wetlands and Estuaries for Tomorrow has already passed a resolution which supports the recommendations of the Estuarine Study Committee as a step in the right direction.

U. S. BUREAU OF SPORT FISHERIES & WILDLIFE, M. FAHAY

What do you see? Short-term gain, or long-term loss? Dollars and cents or dollars and nonsense? The marshes are going.

We hope, first of all, that the state and federal governments will establish agencies whose sole function will be to safeguard our estuarine resources and to oversee their proper management.

Secondly, we hope that the state and federal governments will understand from the beginning that these agencies cannot operate unless they are properly funded. A number of suggestions for financing estuarine conservation have been outlined in the Estuarine Study Committee's report. Additional sources of revenue will probably be suggested as our estuarine problems are studied in greater depth.

Third, we hope that the state and federal governments will initiate land acquisition projects as soon as possible. We further hope that, as soon as these lands are acquired, trained personnel in the appropriate agencies will be encouraged to institute *planned* management programs which will protect our estuarine resources while allowing maximum human use.

Certainly we do not want to ban men from the sounds and marshes, nor do we believe all estuarine areas should be preserved in their present state. We do believe, however, that *substantial* portions of these areas should be set aside for the public of today and for the generations of tomorrow. We believe that all estuarine areas should be classified and managed according to their best use—much as a city is zoned for residential, industrial and other purposes. Certain estuarine areas should be designated for housing, other areas for industrial purposes, other areas for recreational development only and still other areas should be preserved in their present state and protected from any alteration whatsoever. Through a planned system of classification—and I cannot emphase the term "planned" too much—we can derive the maximum resource use with the minimum resource depletion.

Fourth, we further believe that strong federal regulations to control the application of pesticides should be enacted. We can no longer afford to allow the indiscriminate use of these dangerous materials by anyone with money enough to buy them. We believe these materials are beneficial to man and necessary to today's specialized farming techniques. However, it seems apparent that the use of these materials has become so widespread and that their effects are so complex—directly and indirectly—that only highly-trained and qualified persons should be allowed to apply them.

Finally, we believe that stronger state and federal water and air pollution control regulations should be enacted. We have made some steps toward water and air pollution control in North Carolina, but conditions on many of our rivers and in many of our towns indicate that we have not done nearly enough.

Even if we had sufficient time to prepare a detailed outline of what we in Wetlands and Estuaries for Tomorrow consider the best use of each estuarine area in North Carolina, we could not have presented it in the brief time available at this meeting. However, I hope I have at least made clear to you some of the broad concepts which we believe should be considered in a comprehensive estuarine program, and I certainly hope I have left no doubt in your mind as to our attitude toward the present estuarine program in North Carolina or our general attitude toward the conservation of our estuarine resources and of all our natural resources.

"A politician," gentlemen, "thinks of the next election; a statesman of the next generation." I hope that we shall soon see an army of statesmen positioned to conserve and protect our estuarine resources—and all of our resources. I firmly and honestly believe the survival of our own species depends on it as much as does the survival of the smallest crustacean or the most fragile microorganism.

Thank you.

H. E. Harrison, Jr.
President
Wetlands and Estuaries for Tomorrow
Box 400
Plymouth, North Carolina 27962

EDITOR'S NOTE—Responding to increasing pressures on the nation's estuarine areas, the U. S. Forest Service has issued the following policy statement showing their concern for estuaries and their interest in estuarine conservation.

It shall be the policy of the Forest Service, Southern Region, to retain, safeguard, and preserve National Forest owned estuaries, and, within its jurisdiction, take steps to protect these valuable biological and recreational areas from encroachment, pollution, damage, or destruction by man-made forces. Furthermore, the Forest Service shall cooperate with interested agencies and organizations in all reasonable efforts to restore and rehabilitate National Forest estuaries presently in a damaged condition. The Forest Service shall observe such principles of watershed management, pest control, and land use development on National Forest holdings within the watersheds of estuaries as are necessary to protect such estuarine areas regardless of condition or ownership status.

This policy will guide our activities pending further direction from the Chief and until the Secretary of Interior makes his report to Congress as authorized by the recently passed Estuarine Act.

A multiple use supplement on estuaries is in preparation. Pending issuance of same, be guided by the above policy and the following considerations when concerned with estuarine management:

—Permit no pollution, dumping, filling, dredging, ditching, or damming of estuaries.

—Construct no dams, dykes, road fills, culverts, or other barriers which materially alter the free and natural flow of fresh water to the estuary, or the ebb and flow of the tides, or block anadromous fish from spawning runs.

—Use only short-lived (soft) Pesticides within the watersheds of coastal streams.

—Do not dispose of by exchange lands that include or border on estuaries—attempt to acquire estuaries when justified in conjunction with other objectives.

—Initiate or permit no watershed developments without a careful evaluation of their effect upon the periodic or seasonal flows of fresh water affecting the saline balance of estuaries.

—Cooperate with State, Federal, and local agencies or organizations in all reasonable projects for estuarine protection, restoration, rehabilitation, or research.

—Permit such recreation developments as encourage public use and enjoyment of estuaries without physical, chemical, or biological impairment, thereof.

Oceanonics, Inc. Houston, Texas
A subsidiary of The Rucker Company
Complete Oceanographic Services. Consulting and Equipment Rental or Lease

December 7, 1968

Dr. Thoman, Regional Director
F. W. P. C. A.
1421 Peachtree, N. E.
Atlanta, Georgia 30309

Dear Dr. Thoman:

Enclosed please find a copy of the address by myself at the recent F.W.P.C.A. meeting in Mobile, Alabama.

I have not as yet seen a draft of the other material presented.

Yours sincerely,

Edward R Ibert
Edward R. Ibert
Chief Scientist

Enclosure

ERI/jch

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ADDRESS TO F. W. P. C. A. MEETING

Mobile, Alabama -- November 21, 1968

Mr. Chairman; Ladies and Gentlemen:

A few remarks.....I requested a few minutes of your time to say a few things which entered my mind as I heard the presentation and interrogations here today. I will add that I intend to submit a more detailed account to be added to the minutes of this meeting within the time alloted.

First, I am not a disinterested observer here. Until September past I was a professor in the Oceanography Department at Texas A & M University, where there is an active program in research and education in Oceanography and Estuarine Ecology. I served as a Chairman of the Galveston Bay Houston Ship Channel Study Plan (in chemistry). I have directed research for several successful doctorial candidates in studies of Pollution, Waste Disposal and Coastal Oceanography. Let me add the research alluded to here earlier on the Mobile Bay Jubilee, performed by Mr. Hal Loesh (1960), was published while he was a graduate student at Texas A & M University. The hydrographic study of Mobile Bay by Austin (1954) was performed under O. N. R. Grant and is available from the Oceanography Department at T. A. M. U. Mr. J. Bell's (1952) Masters thesis also at T. A. M. U. is pertinent.

In many areas the major problem of estuarine pollution is the sum of restrictions to circulation (natural or man-made) compounding the problem of waste elimination. I firmly believe that if it were not for the aperiodic storms, hurricanes, river floods and other such natural disasters, we would long ago have lost our estuaries as productive basins. The Galveston Bay now contains several million acre feet of saprophitic material (Mr. Roy Hann) choking its lagoons and bays. The next hurricane to produce major storm tides in the bay may well act, just a pulling the flush lever acts in more familiar surroundings, to clean this material out redistributing the spoil banks and generally wrecking many of man's more inappropriate additions to the bay.

Progress in research has been defined as "The Replacement of Enormous Mistakes with Smaller Mistakes", (Dr. Gunnar Detrich).

Dr. Detrich also said, "One can always tell the instructor from the student. The Instructor has his ignorance better organized". Both of these remarks are pertinent here. We have had presentations today which fall clearly into one or the other categories.

Mr. McClelland's comments on funding of research - the deliberate compartmentalizing of academic and federal funding policies - produce academic experts so finely tuned to their own area of specialization that they can hardly talk intelligently to scientists in other disciplines. We need people who can take an over-view of a problem or problem area. These people require funds and the opportunity to guide others. They then utilize contributions from other disciplines in an orderly manner to elucidate an entire problem. Mr. McClelland at least has the desire to do so, as do I.

Progress in man's economic and political growth is not necessarily like progress in research as defined earlier, but in many instances is more the replacement of small problems with enormous problems.

Unless we deliberately train and produce men qualified to take the over-view, to see more aspects of the problem than his fellows, not only are our estuaries doomed but civilization as well......

LIST OF REFERENCES CITED

Bell, J. 1952; A Study of Oyster Production in Alabama Waters. M. S. Thesis Texas A & M University. (Contains bottom and surface temperature data for Mobile Bay and Mississippi Sound - as well as salinity records from Marine Laboratory Alabama, July to September 1951.

Austin, G. B., Jr. 1954; On the Circulation and Tidal Flushing of Mobile Bay Alabama, Part I & II Tech Report #12, April 1954, O.N.R. Contract N70NR - Bureau of Ships NE 120219-5.

Loesh, H. 1960; Sporadic Mass Shoreward Migration of Demersal Fish and Crustaceans Ecology, 41; 1960. (Mobile Bay Crab Jubilee).

Alabama Federation of Women's Clubs

Fairhope, Alabama
November 27, 1968.

Dear Mr. Thoman,

At the Southeastern Federal Water Control Administration hearing Thursday Nov,21, 1968 in Mobile there seemed to be agreement that "We must have clean water" and that "We need it NOW".

This is just a note to ask you to please use your influence to see that we do get CLEAN WATER quickly.

Sincerely,

(Mrs) C.O Christianson
State Division Chairman
Clean Enviroment AFWC

LEAGUE OF WOMEN VOTERS
OF MOBILE
AFFILIATED WITH THE LEAGUE OF WOMEN VOTERS OF THE UNITED STATES

Fairhope, Alabama. December 2, 1968

Mr. John R. Thoman, Director
U. S. Department of the Interior
Southeast Region , Water Pollution Control Administration
1421 Peachtree St.
Atlanta, Georgia

Dear Mr. Thoman:
As a member of the Board of the League of Women Voters , I am charged with Water Resources concerns. I submit this report as an extension of our participation in the hearings regarding the National Estuarine Pollution Study held in Mobile on November 24.

The Mobile League of Women Voters through its (then) representative , Mrs. Richard Lynn, testified in behalf of those seeking high water quality standards at the hearings in January, 1967. I represented other organizations at the hearings in Bay Minette and Mobile.

In August, 1968, Mrs Lynn and I accompanied representatives of several conservation and wildlife organizations on a fact-finding tour by boat into the tributaries and channels feeding the Mobile Bay estuary. We wanted to see at first hand to what extent the provisions discussed in the January 1967 hearings had been carried out.

With some notable exceptions (Chickasaw Sewage Disposal System, for example,) the conditions we observed could only be described as appalling. Although a year and a half had passed since the Water Improvement Commission assured concerned citizens that violations would be dealt with, we found serious pollution in the area. We did not attempt qualitative measurements, beyond determining that fingerlings could not survive longer than three minutes in the discharge area, but we observed a heavy burden of waste in many stretches of the river, excessive temperature rise, thick encrustations of offal entirely covering the stagnant backwaters, massive drifts of detergent foam in the sewer outlet, and the pervasive odor of putrefaction hanging over the entire area only a few miles from the heart of Mobile, Reluctantly we were forced to conclude that local and state agencies are unwilling or unable to manage the waters of the estuary and its tributaries in a manner that will insure the preservation, development and use of those estuaries.

We urge, therefore:

A. Implementation of the Estuarine Research Program as provided for in H.R. 25.

B. Reasearch to include regional studies as well as local and river basin studies.

C. Sociological and agricultural as well as economic and technological studies, to insure evaluation of pesticide use and drainage programs, road-building and housing development, infringement on recreational and cultural use, destruction of livelihood of small business operators, and general degradation of quality of the environment.

D. Initiation of emergency measures to reduce pollution, and restriction of additional discharge permits during the period of study.

LEAGUE OF WOMEN VOTERS
OF MOBILE
AFFILIATED WITH THE LEAGUE OF WOMEN VOTERS OF THE UNITED STATES

We are confident that some realistic cost-sharing plan can be provided which would offer incentives for reversing the present trend and which would offer a reasonable alternative to the present alarming deterioration in the rivers and estuaries.

We hope to be informed of the progress of the hearings and of legislation proposed as a result of the investigations.

Very Sincerely,
Verda Horne
Verda Horne (Mrs. Thomas R. Horne)

Chairman for Water Resources concern
708 Fairhope Ave.
Fairhope, Alabama 36532

Montrose Garden Club
Montrose, Alabama

December 3, 1968

Mr. John R. Thoman
Regional Director
Federal Water Pollution Control
Suite 300
1421 Peachtree St., N.E.
Atlanta, Georgia 30309

Dear Mr. Thoman,

The members of the Montrose Garden Club are most concerned about the condition of the waters of Mobile Bay and the rivers which feed into it. The cleanliness of these waters is of prime interest to residents of this area, as they are a source of both recreation and livelihood to many.

We feel that the pollution situation is not improving and we would like to see the necessary legislation enacted to correct the problem.

Thank you for your efforts in this serious matter.

Very truly yours,

Jane Filippini (s,o)
Mrs. Bruce Filippini
President

JBO/sdo

Mrs. Baker Brownell
XBXXXXXX
Drawer J
Fairhope, Alabama
36532

November 26, 1968

Mr. John R. Thoman
Regional Director
Federal Water Pollution Control Administration
Suite 300
1421 Peachtree Street, N. E.
Atlanta, Georgia 30309

Dear Mr. Thoman:

I testified at the water quality hearings in Bay Minette and in Mobile in January 1967, and I believe that this testimony is on file.

I attended the hearing in Mobile on November 21, 1968.

The interesting and disheartening fact is that nothing positive seems to have been accomplished in the last two years. Indeed the situation has deteriorated. Mobile Bay has the distinction of moving from 30th place to 3rd place in fish kills. I guess I should have said the State of Alabama is now 3rd. The river near McIntosh and Eight Mile is a mass of hot, polluted scum, according to friends of mine who have investigated the area by boat. Our Eastern Shore is doomed unless something is done.

The Alabama Water Control Commission is still composed of 15 members, I believe, eleven of which represent industries and municipalities. Business is suddenly very strong for the Commission -- they feel that their friends will save them the expense and trouble of cleaning up the water which they use, -- water which is vital to their survival. And never mind the rights of the public, now or in the future.

All this pious talk from the representatives of industry about the need for further studies is nonsense. What we need is action on the basis of biologists' and ecologists' reports. Furthermore, I believe that federal control has been proved essential.

Sincerely,

Adelaide H. Brownell

Mrs. Baker Brownell
District VIII
Garden Club of Alabama
Drawer J
Fairhope, Alabama 36532

Eastern Shore Art association, inc.
FAIRHOPE, ALABAMA

PERCY H. WHITING ART CENTER
P.O. Box 448
401 Oak St., Fairhope, Alabama 36532

November 29, 1968

Dept. of Interior
Federal Water Polution Control Administer
Atlanta, Georgia 30309

Gentlemen:

The Eastern Shore Art Association, with headquarters and a building at Fairhope, Alabama on the Eastern Shore of Mobile Bay, includes a membership of 350. It administers a broad program of education, recreation, and civic betterment in the entire area.

Most of its members live on the bay shore or within a short distance of the estuary. All are affected by the waters of the bay which provides recreation, livelihood and the aesthetic habitat that has been a major factor in the recent expansion of population in this area.

The Association, since its founding, has supported measures to control pollution of the bay and has urged that measures be adopted that would protect areas of use and natural beauty from further degradation. It has become obvious, especially during the past few years, that problem is not amenable, in its entirety, to local or state solution. We urge, therefore, that the broad problems of establishing and enforcing effective standards for pollution control be carried out by the federal agencies as an obligation consistent with the Clean Water Restoration Act of 1966, in cases where state agencies charged with Improving the Quality of the Estuarine Waters fail to achieve such standards.

We further urge an augmented program of research in the estuary, with assurance that such research not be used as a deterrent to immediate enforcement of minimum standards.

Yours very truly,

EASTERN SHORE ART ASSOCIATION, INC.

Helen Stukenholtz

Helen Stukenholtz
Vice-President

COPY

201 Grand Avenue
Fairhope, Alabama 36532
November 28, 1968

Mr. John R. Thoman
Regional Director
Federal Water Pollution
Control Administration
Suite 300
1421 Peachtree Street, N.E.
Atlanta, Georgia 30309

Dear Mr. Thoman:

I attended the recent hearings you conducted in Mobile and am writing to underscore a plea that you and your Administration please keep a firm hand on our water pollution situation in the Mobile Bay area!

I have joined others in the past year in testifying before the Alabama Water Improvement Commission as to our deep concern over the fish kills on Eastern Shore, as well as the very low tolerence imposed by the suggested standards of the Commission.

You must know how imbalanced is the representation on the Commission -- industry having some 12 to 3 conservationists, as I recall. The imbalance is so obvious no strength remains for the minority except as a Federal agent or some higher authority in government keeps an eye and an ear open to the pleas of we who seek a fair and clean use of our water resources.

Don't forsake the people who want clean water, please, sir.

Sincerely,

Elizabeth L. Belt
(Mrs. Guy J.)

Apt D2, 1000 Airport Rd.
Huntsville, Alabama
December 1, 1968

Director, Technical Programs
Southeast Water Laboratory
Federal Water Pollution Control Adminstration
Athens, Georgia, 30601

Dear Sir:

The following remarks are submitted as a Statement for the Record of the Hearing held November 21, 1968 at Mobile, Alabma on the National Estuarine Pollution Study.

Though I am no expert on the ecology and potential industrial/other commercial uses of estuarine lands, I am well acquainted with several other aspects of conservation. I believe the same pattern - preoccupation with immediate financial gain, little or no understanding of the relevant ecology, the saving of far too little too late, and tardy implementation of relatively ineffective protective regulations - prevails here as in conservation in general.

While the immediate advantages of development or the political expediency of NOT taking effective action NOW to curb current pollution in estuaries, may be quite evident, all of the aspects of estuarine ecology are not understood. However in regard to ecology it is now established that these areas are from two to four times more productive than the average of farm land per unit area (I reference you to the work of Dr. Eugene P. Odom of the University of Georgia, Athens, Georgia); their products are oysters, scallops, clams, and food for sport fishes. These areas are fast vanishing, being subjected to a variety of pressures arising from commercial ambitions and pollutions. There is altogether too much "Know how" and not enough "Know what" - unless we preserve a large fraction of the remaining unspoiled estuarine lands, we may never really know all the salient features of their ecology, or even knowing, find it too late to realize the benefits their intelligent protection and management might confer on humanity.

I recommend:

1. The formation of an Alabama State agency, probably under the Department of Conservation, charged with the study and protection of all estaurine lands. This agency must be realistically funded to be effective, and it must have the authority, including recourse to courts and the support of strong state laws, to be able to protect estauries against further deterrioration.

2. This agency should upon its formation immediately begin an acquisition program aimed at securing the most vital and most key estuarine areas under state ownership - e.g. areas under the most immediate threats everything else being equal, would be acquired first. This acquisition program should be supported/guided by concurrent studies inventoring the kinds of estuarine land, their prospects for development, and their values as natural resources. Any error on the side of over protection can be quickly corrected; errors on the side of development and the permitting of pollution can be corrected slowly if at all.

3. The value of the unspoiled estuarine lands is probably sufficient to justify both state and federal agencies charged with their protection. Such a system might serve to keep both kinds of agencies "honest" and diligent.

Sincerely,

Daniel Payne Hale

Daniel Payne Hale, Ph D

Concurrence: Martin O. Burrell

Martin O. Burrell

Route 4, Madison Ala.

113 Volanta Ave.
Fairhope, Ala.

Dr. Ira Myers, Chairman
Alabama Water Improvement Commission
Coordinator
Federal Water Pollution Control Administration

Dear Sirs:

Some action should be taken to stop the dredging of shell reefs in Mobile Bay because the decomposing material around the shells is left in suspension in the bay water and forms a silt which is covering and ruining the entire bay.

This is ruining the live oyster reefs and the pollution is also having an adverse effect on other forms of sea life plus the very great damage to our use of the bay for swimming and recreation.

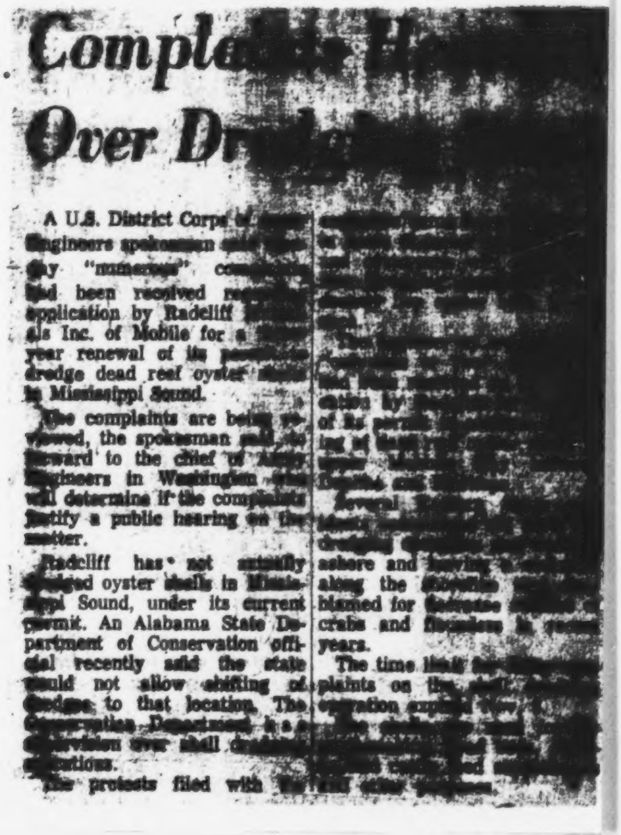
The beautiful beaches surrounding the bay which used to be almost white are becoming darker every year.

Certainly the rights of all the people to have our natural resources preserved are more important than allowing one industry to ruin them.

Yours truly

B I Reynolds

B. I. Reynolds, Captain, USCG Retired.



Compla[illegible] Over Dr[illegible]

A U.S. District Corps [illegible] Engineers spokesman said [illegible] day "numerous" com[illegible] had been received re[illegible] application by Radcliff [illegible] als Inc. of Mobile for a [illegible] year renewal of its [illegible] dredge dead reef oyster [illegible] in Mississippi Sound.

The complaints are being re[illegible]viewed, the spokesman said, [illegible] forward to the chief of Army Engineers in Washington who will determine if the complaints justify a public hearing on the matter.

Radcliff has not actually dredged oyster shells in Mississippi Sound, under its current permit. An Alabama State Department of Conservation official recently said the state would not allow shifting of dredges to that location. The Conservation Department has supervision over shell dredging operations.

The protests filed with the [illegible]

[illegible] cation by [illegible] of its [illegible] ing of [illegible]

Several [illegible] dredging [illegible] ashore and [illegible] along the [illegible] blamed for [illegible] crabs and [illegible] years.

The time limit [illegible] plaints on the [illegible] operation expired [illegible]

[illegible] and other purposes.

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